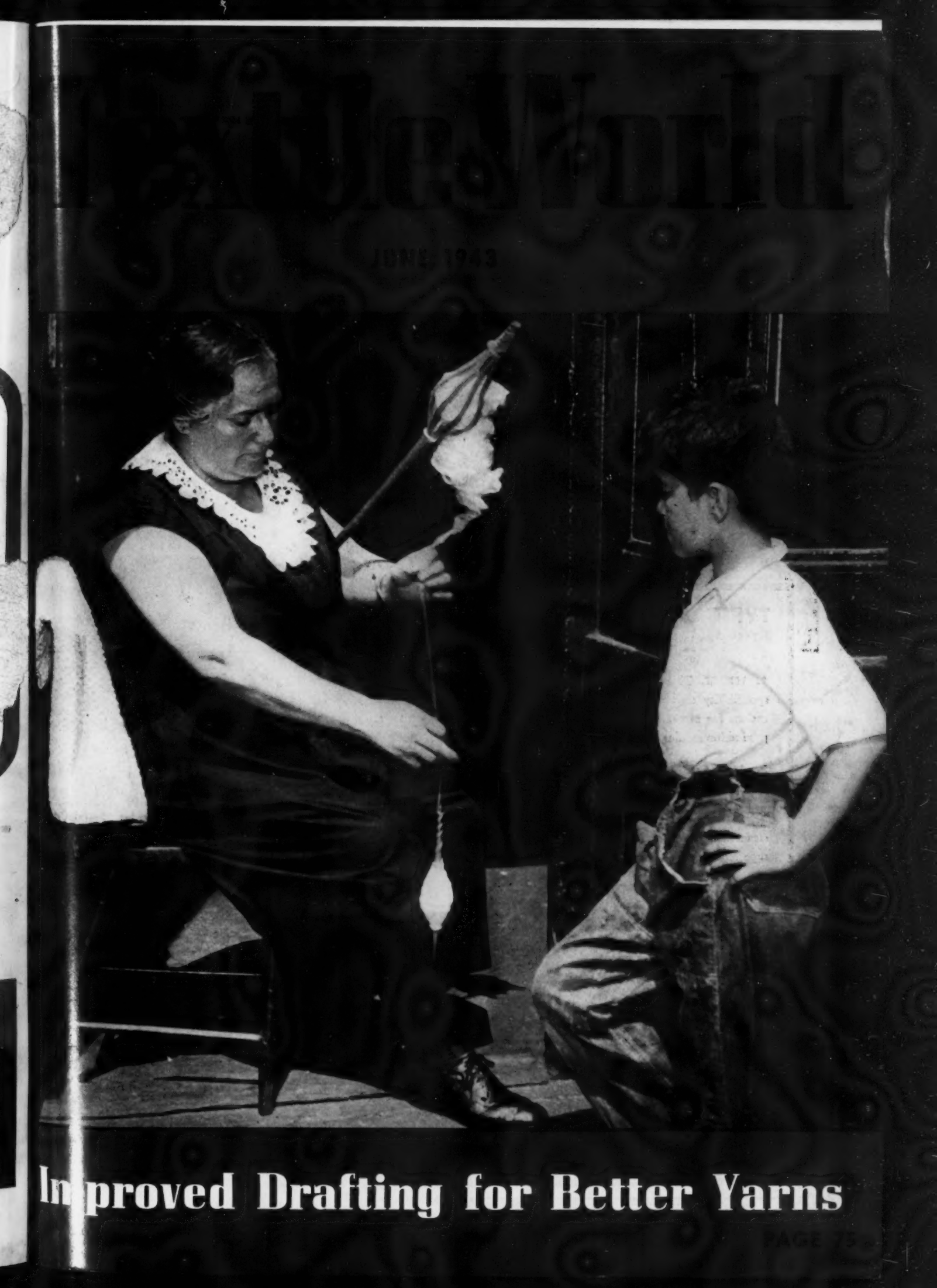
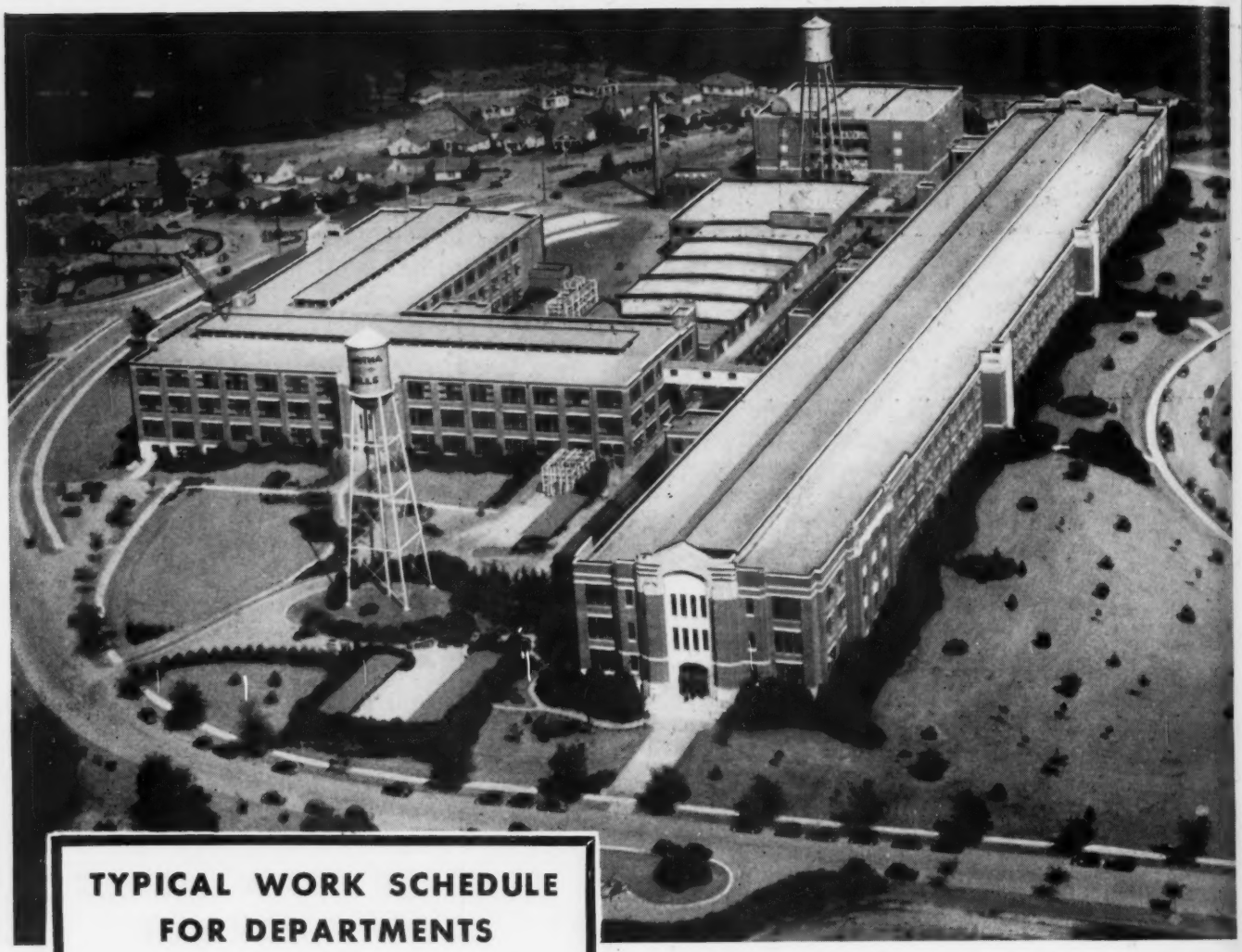


Improved Drafting for Better Yarns



TYPICAL WORK SCHEDULE FOR DEPARTMENTS

1. TEXTILE. This department assumes direct responsibility on textile projects. Plans and specifications for machinery and transmission equipment, production studies, mill surveys, reports, appraisals.

2. ARCHITECTURAL. Designing of schools, churches, auditoriums, houses, stores, office buildings, etc.

3. STRUCTURAL. Design and supervision of construction of all industrial buildings, foundations, superstructures, estimates, remodeling costs.

4. MECHANICAL & ELECTRICAL. Power plants, heating, fire-protection, plumbing, air-conditioning, lighting and power distribution systems.

5. MUNICIPAL. Filter plants, incinerators, water supply and sewerage systems, streets, roadways and landscaping.

Five integrated departments, each specializing in a separate field, form the basis for Robert and Company's operations. They work together as required on all projects, regardless of size or nature. For example, the Martha Mills, Silvertown, Ga. plant of the B. F. Goodrich Company, shown above, required the full cooperation of each of these departments. These five groups, under central executive control, form a close-knit, well-rounded organization . . . literally, a "clinic" . . . where architectural and engineering tasks are handled with thoroughness, precision and foresight.

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Architects and Engineers

NEW YORK • ATLANTA • WASHINGTON

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A Special Reserve in Cash

For the Purchase of the New High Speed Looms
You Must Have After the War

You Can

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and

Help Your Country

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.....FIGHTING STRENGTH needs peak productive power. To avoid breakdown and delay in *TEXTILE MILL* operation use . . .

SINCLAIR TEXTILE LUBRICANTS. Sinclair Bearing Greases, *water-soluble* and *neutral* in color, *correctly* lubricate pressure-fitted plain bearings. Lily White Oils meet all spindle loads and speeds. No-Drip Lubricants are particularly suited for top rolls and worn comb boxes. Sinclair also supplies quality *Knitting Machinery Oils.*

Write for "The Service Factor"—a free publication devoted to the solution of lubricating problems.

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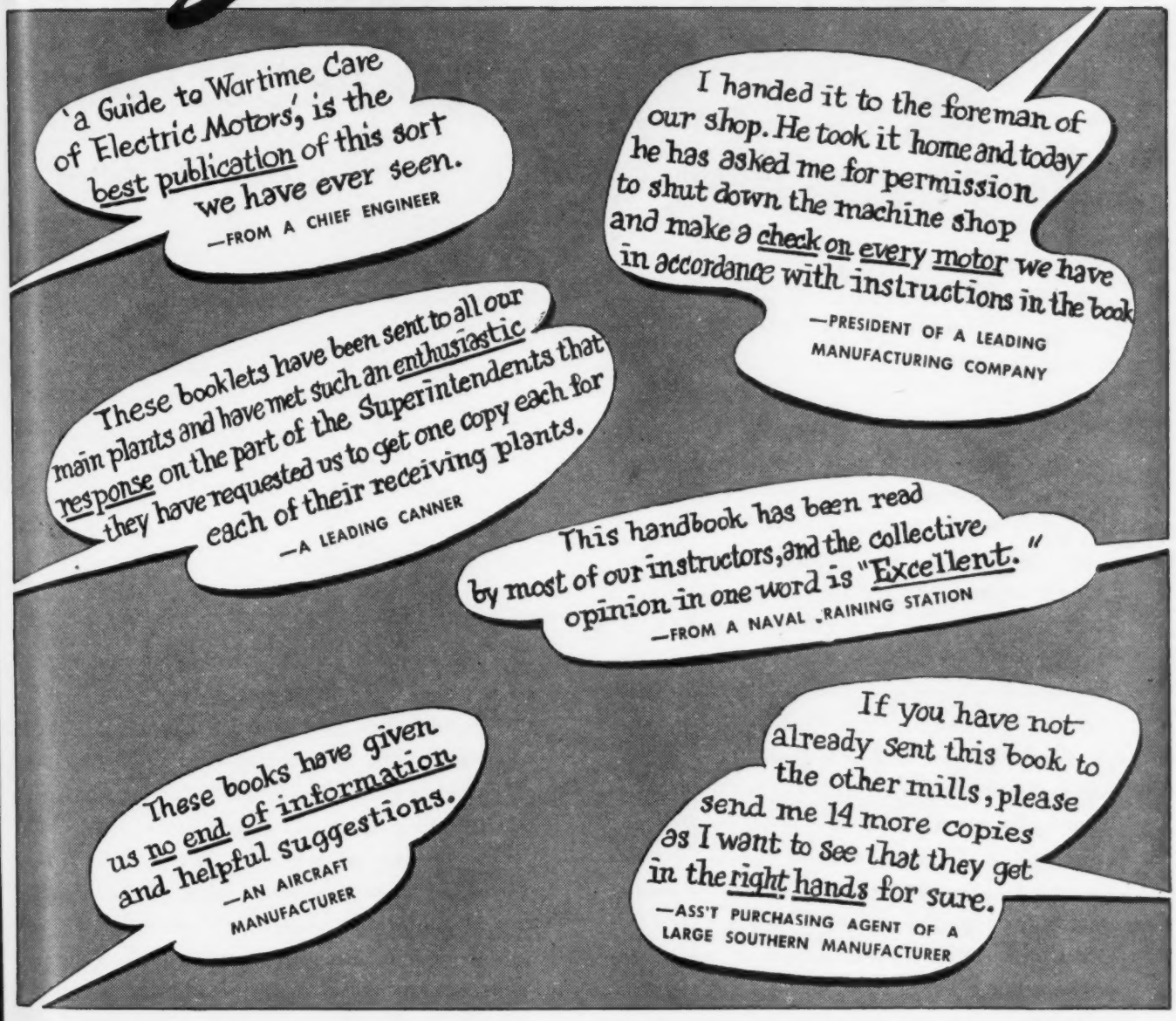
'a Guide to Wartime Care of Electric Motors,' is the best publication of this sort we have ever seen.
—FROM A CHIEF ENGINEER
I handed it to the foreman of our shop. He took it home and today he has asked me for permission to shut down the machine shop and make a check on every motor we have in accordance with instructions in the book
—PRESIDENT OF A LEADING MANUFACTURING COMPANY
These booklets have been sent to all our main plants and have met such an enthusiastic response on the part of the Superintendents that they have requested us to get one copy each for each of their receiving plants.
—A LEADING CANNER
This handbook has been read by most of our instructors, and the collective opinion in one word is "Excellent."
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If you have not already sent this book to the other mills, please send me 14 more copies as I want to see that they get in the right hands for sure.
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Setting up as targets for maintenance the 9 main enemies of motor life — dust, stray oil, moisture, friction, misalignment, vibration, uneven wear, overload, underload — this new handbook gave simple, easy-to-get, *wartime* directions for fighting them.

Result? Over *100,000* copies are already in use by the armed forces and war industry — and new requests pour in daily. If you haven't yet obtained *your* free copy, write ALLIS-CHALMERS, MILWAUKEE, WIS. A 1592

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When you do need new motors, look into the strength, solidity and all-around protection of the new "Safety Circle"—protected top, sides, ends and bottom.

AC WE WORK FOR VICTORY WE PLAN FOR PEACE

THE SAME OLD PROBLEMS

Comments by Henry G. Lord

The incident about James G. Blaine, which I related last month, reminded me of a meeting with his opponent in the presidential campaign of 1884—Grover Cleveland.

Cleveland's first term of office was from 1885 to 1889; then he was defeated by Benjamin Harrison, was out of office for five years and then re-elected in 1892 and served until 1897.

He was very fond of sea fishing, and with his great friend Joseph Jefferson, the actor, spent much time fishing in the waters about Cape Cod, Massachusetts.

I think it was between his two terms of office that the Clevelands had a summer cottage one year at Marion on Buzzards Bay. Their house was just across the road from the home of some friends of mine with whom I occasionally spent a weekend. They were good friends of the Clevelands. On Sunday nights, when the maids were out, it was the custom of the two families to get together for a picnic supper at one house or the other.

On one of these occasions, when I was visiting there, we all went over to the Clevelands. It was a very hot evening. Mr. Cleveland, in a seersucker suit and with a wilted collar, sat in one corner of the porch fanning himself, with perspiration running down his face. He was a very stout man and moved as little as he had to. He greeted us with a nod, shook hands and kept on sitting in his corner.

The rest of us got supper and I particularly recall how gracious and charming Mrs. Cleveland was to a very young man who was somewhat overpowered by the circumstances.

They had an enormous dog which was devoted to her and followed her everywhere, and when Mrs. Cleveland and the dog and I went to the pantry for the dishes, she cautioned me to watch out for broken china in case he wagged his tail.

I had a very pleasant evening in spite of the fact that Mr. Cleveland hardly said a word. I guess he was too hot to talk. Perhaps he was thinking of the Wilson Tariff Bill, or the Silver Purchase Repeal or the impending financial crisis which brought out the greatest labor riots this country has ever known. Those were all problems of his administration.

Cleveland was a great president; a man of integrity and courage who placed the country's welfare before politics. I can't say that I was drawn to him personally, but I certainly respected him and admired his courage.

As I was refreshing my memory on these incidents of fifty years ago, I could not but be impressed with the similarity of some of the national problems then and now. Of course, there was no war then, nor an income tax, but there was the tariff, the silver purchases, the gold supply (too little then), the labor troubles and the growing bureaucracy.

I am not alarmed by the fact that we have acquired a new crop of problems during the past half century. I do feel, however, much concern over our lack of success in solving the old problems.

HENRY G. LORD, *Vice-President of McGraw-Hill Publishing Co. and Founder of Textile World*

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... *eliminates rusty bearings and stops spotting of stockings*

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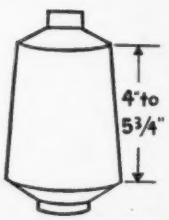
1. It will wind the standard Foster rayon cone with the CONVEX base, which prevents "nipitis".

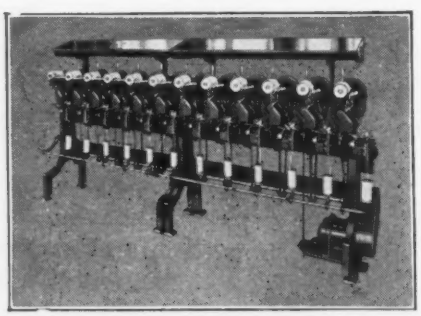
2. Or the Type H Pineapple Cone, with the aid of a special attachment.

3. Traverse of pineapple cone can be varied from 4" to 5¾", using the same cam.



4. Cone density may be varied from 30 to 70 grams, simply by adjusting the pivoted pressure roll and the tension.

Descriptive circular on request.



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POWER CAPACITY: Exceeds any V-belt now on the market. Handles overloads and peaks far more satisfactorily.

STRETCH: Practically zero -- once matched, always matched.

SPEED RANGE: Will stand the higher tensions of lower speeds.

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ADAPTABILITY: Makes Multi-V drives usable where heretofore denied by engineering limitations. Permits installation of more compact drives, in many cases without outboard bearings.

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FOR FULL INFORMATION and data on this latest Goodyear "first," consult the G.T.M.—Goodyear Technical Man. Or write Goodyear, Akron, Ohio or Los Angeles, California, or contact the nearest Goodyear Industrial Rubber Goods Distributor.

GTM-Specified GOODYEAR ENDLESS STEEL CABLE V-BELT for Multi-V Drives
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GOODYEAR
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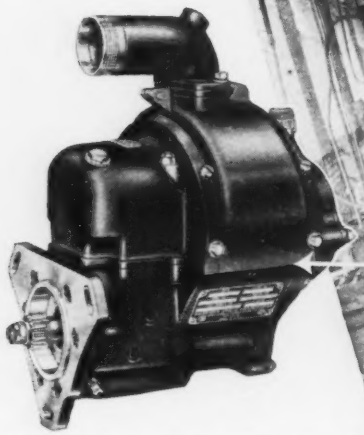

(Photo courtesy: American Bosch Corp.)

This layout is the second of a series showing part of our extensive war work conversion program.

IN FRAMES OR PLANES where quality is essential you can depend on WHITIN! On the same floor where Spinning Frames and Twisters have been built for almost 100 years . . . Skilled Whitin Craftsmen are now making AVIATION MAGNETOS . . the hearts of those mighty engines that power our war planes.

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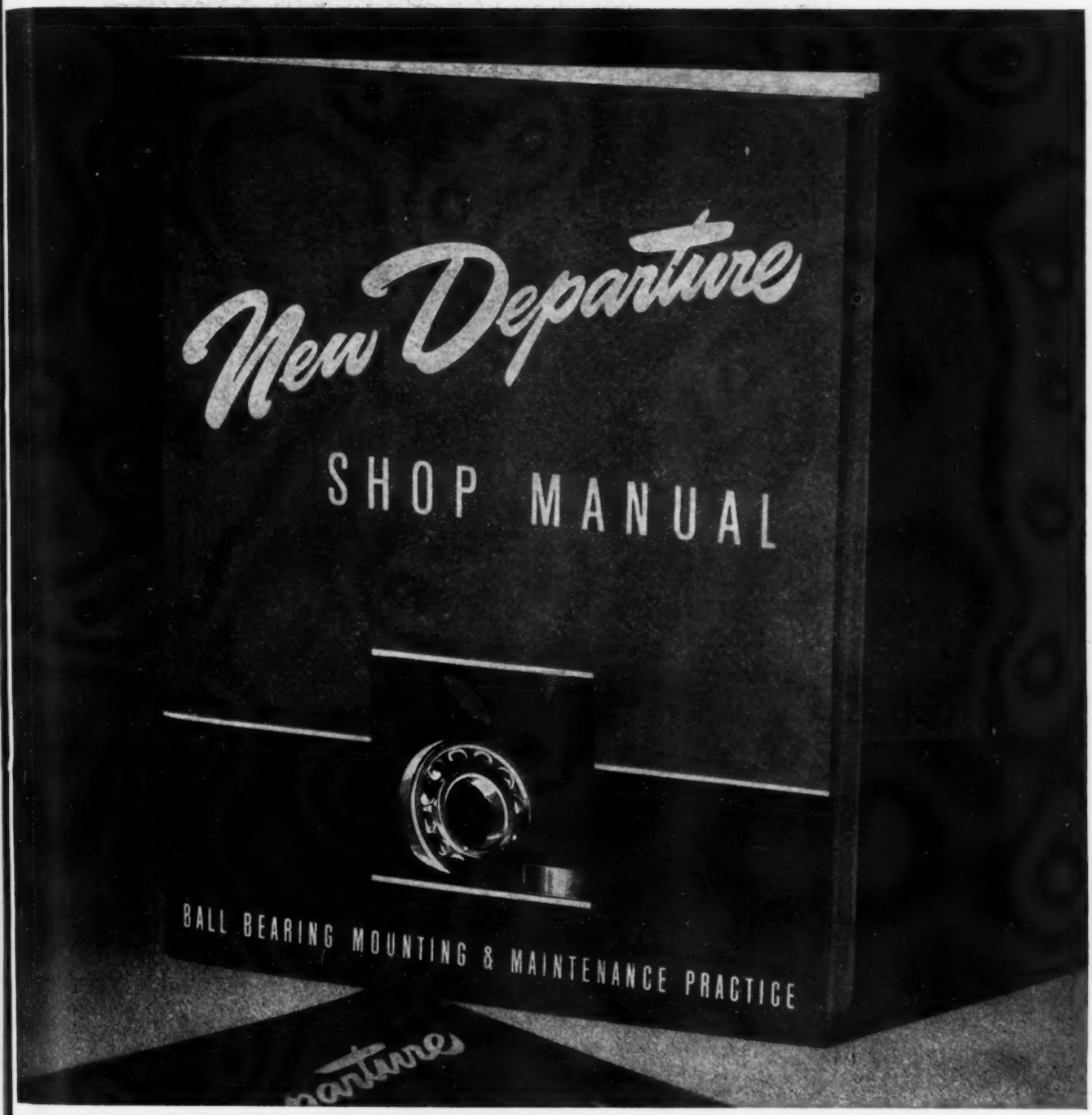


How to keep 'em rolling . . .

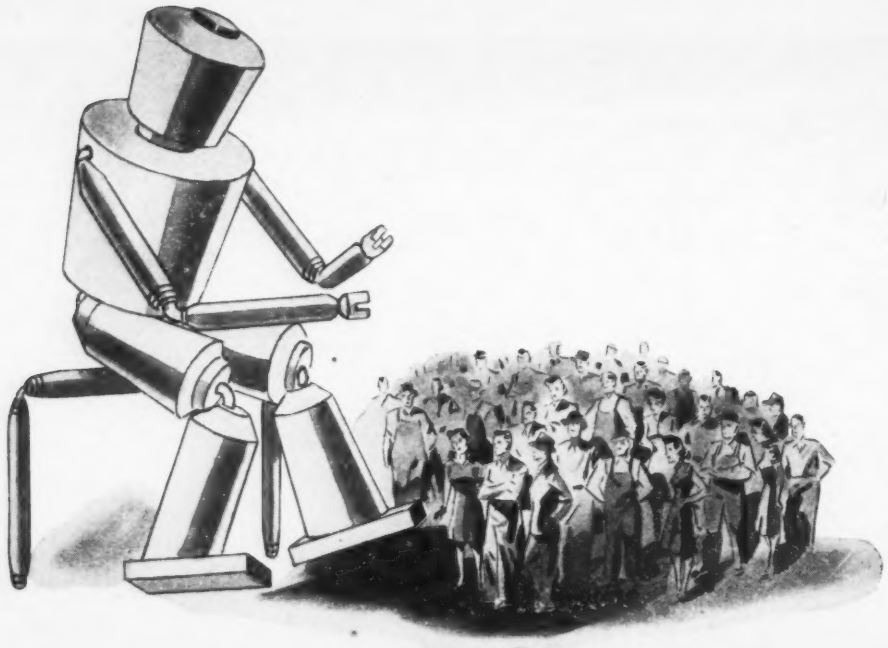
While New Departure's vast productive facilities are giving war projects right of way, New Departure's technical staff has not forgotten its duty to its regular customers.

In fact, both old and new users of New Departure Ball Bearings will find extremely helpful this latest addition to the New Departure Engineering Library—the Shop Manual.

The New Departure Shop Manual should be read by every man responsible for the correct installation of ball bearings for maximum service and long life. Send for your copy and tell us how many additional copies would be required to supply your interested personnel. New Departure, Bristol, Connecticut.

NEW DEPARTURE BALL BEARINGS

3148



HERE'S THE STRATEGY FOR YOUR WAR ON WINDING ROOM WORRIES

Scarcity of skilled help . . . unavailability of new equipment . . . delays in getting repair parts . . . are worrying probably every manufacturer in America. *But as far as your winding room is concerned,* there are definite steps you can take to eliminate these worries to the greatest possible extent. Universal's trouble-prevention services exist for *your* convenience . . . make full use of them now and get maximum performance from your machines.

★ ★ ★ ★

Universal Winders are designed and built for minimum amount of attention over a long period of years. Trouble-breeders have been "engineered" out of the designs. Many fast-moving parts are automatically lubricated. Controls and adjustments are simplified. But winding problems *do* arise, unavoidably . . . and that is why intelligent supervision, proper operation and a regular system of maintenance are needed to help keep your winding room free from trouble.

For maximum production, quality work and economical operation — despite wartime handicaps — take the following steps.

Universal Winding C

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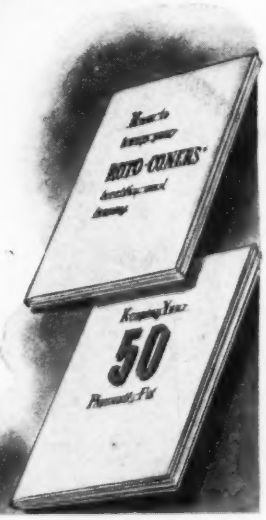
KEEP UP WITH WINDING DEVELOPMENTS ROUGH "GETTING THE MOST FROM WINDING"

etting the Most from nding" — published six es a year in the textile gazines and expanded in a versal Bulletin—is devot- principally to discussions roblems which appear to prevalent throughout the ustry — especially those blems connected with ping equipment in good er.

Step two

SEND FOR IVERSAL'S NEW MAINTENANCE BOOKLETS

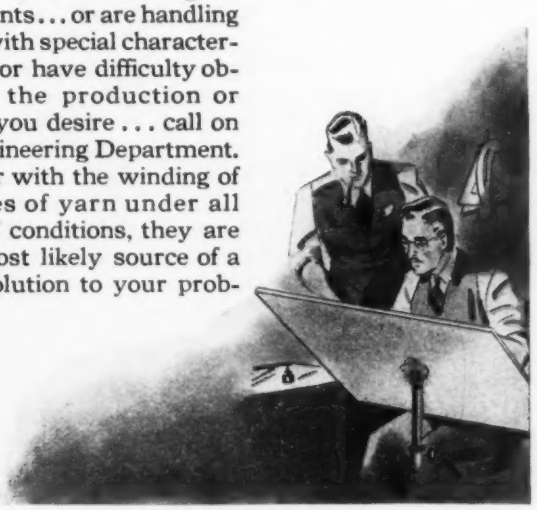
t out are two booklets, first in a series on the care Universal Winders. "Keep- Your 50 Physically Fit" d "How to Keep Your to-Coners* Healthy and ppy" contain practical in- mation, in convenient form, where, when and how to ck lubrication . . . cleaning adjustments to be checked gularly . . . points to be cked for wear . . . hints for operator . . . what to look first in case of trouble.



Step three

SEND SPECIAL PROBLEMS TO OUR ENGINEERS

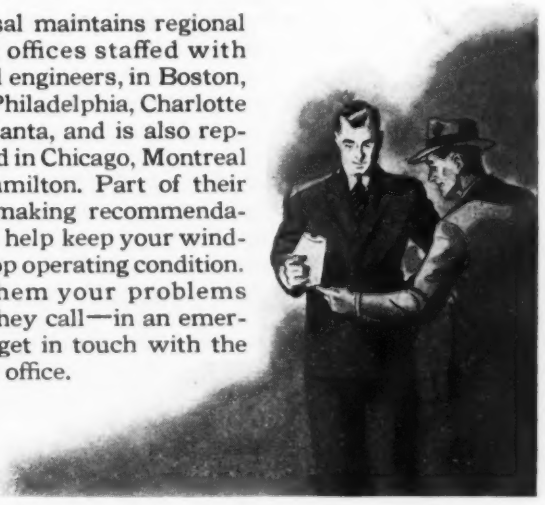
If you have new winding requirements . . . or are handling a yarn with special characteristics . . . or have difficulty obtaining the production or quality you desire . . . call on our Engineering Department. Familiar with the winding of all types of yarn under all types of conditions, they are your most likely source of a quick solution to your problems.



Step four

HAVE OUR RESIDENT ENGINEER LOOK OVER YOUR EQUIPMENT

Universal maintains regional branch offices staffed with regional engineers, in Boston, Utica, Philadelphia, Charlotte and Atlanta, and is also represented in Chicago, Montreal and Hamilton. Part of their job is making recommendations to help keep your winders in top operating condition. Give them your problems when they call—in an emergency, get in touch with the nearest office.



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Made of Durene multi-ply mercerized cotton
4 WAYS BETTER than ordinary cotton
EXTRA COMFORT more absorbent
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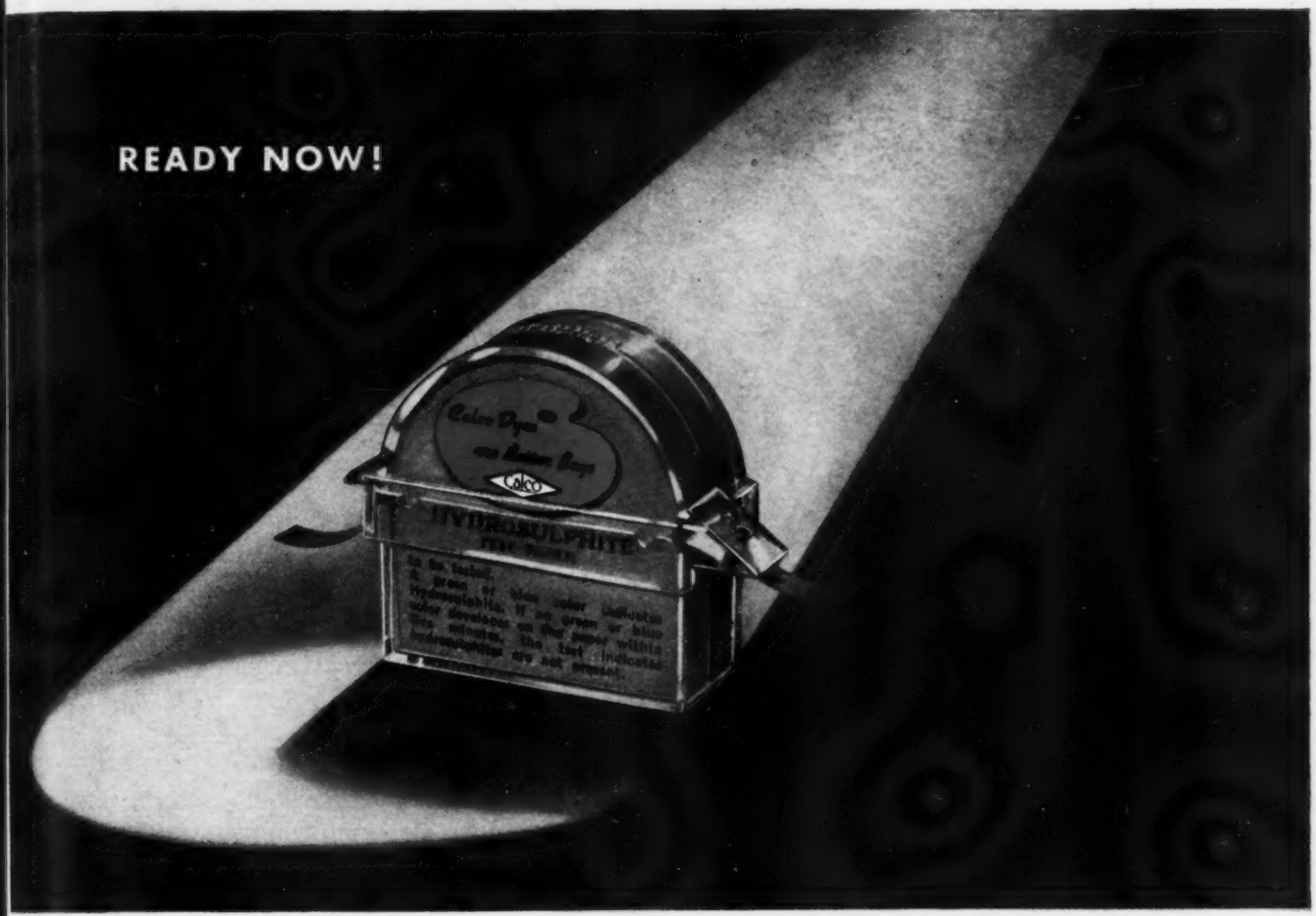

CALCO'S HANDY HYDROSULPHITE-CAUSTIC INDICATOR

HERE'S ANOTHER test kit that's equally as useful for textile men as Calco's PH indicator.

As you can see from the actual-size illustration above, it's conveniently small as any pocket-size tape-measure.

This Calco tester has an air-tight, moisture-proof transparent case which holds both hydrosulphite and caustic test-tapes.

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To get *your* Calco Hydrosulphite-Caustic Indicator . . . all you have to do is to ask your Calco representative.

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Yes, the call is for quality—in our men and in our products. The exclusive patented Tufferizing Process is your guarantee of quality Card Clothing. It cuts the wires even in length and free from burrs. It forms them with accurate, square crowns. It spaces them evenly and parallel in the famous Tuffer foundation.

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Card Clothing for Woolen, Worsted, Cotton, Asbestos and Silk Cards • Napper Clothing, Brush Clothing, Strickles, Emery Fillets. Top Flats Recovered and extra sets loaned at all plants. Lickerins and Garnet Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant • Midgley Patented, and Howard's Special Hand Stripping Cards • Inserted Eye and Regular Wire Heddles

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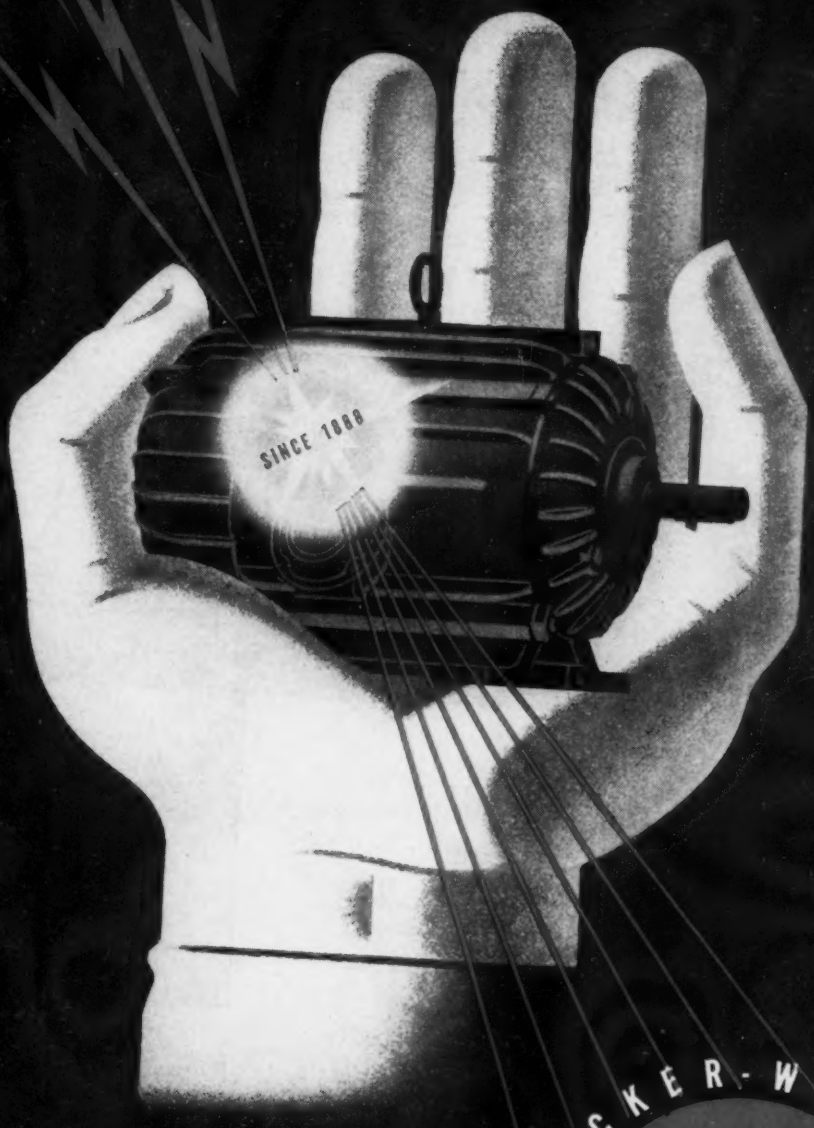

IF you need motors or generators, write or wire us . . . or consult your nearest Crocker-Wheeler office.

We can make *immediate* deliveries on some types . . . but regardless of type, we can deliver in faster time than ever before.

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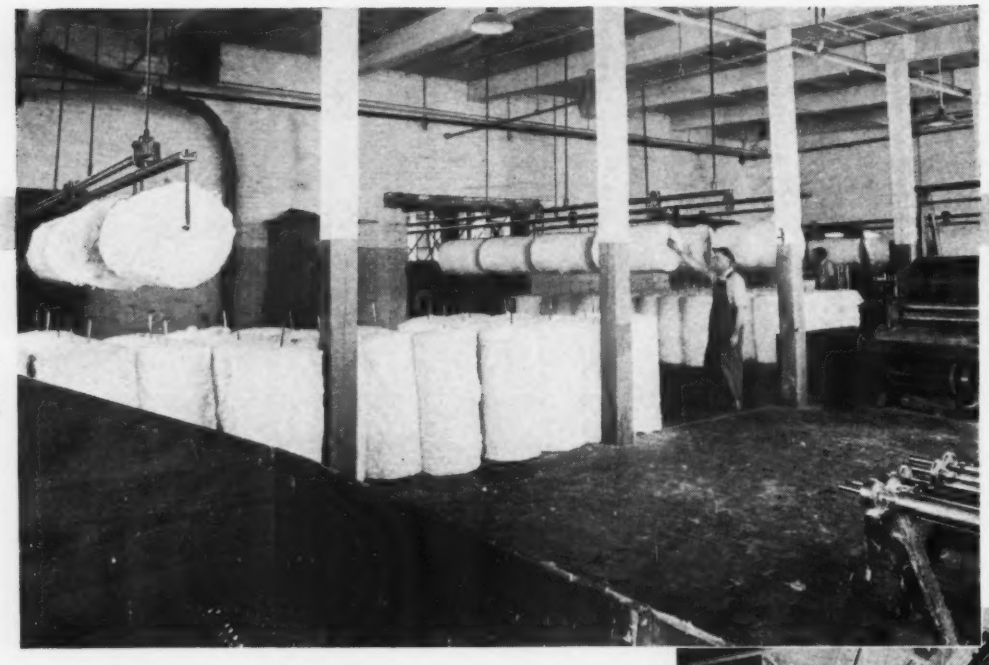

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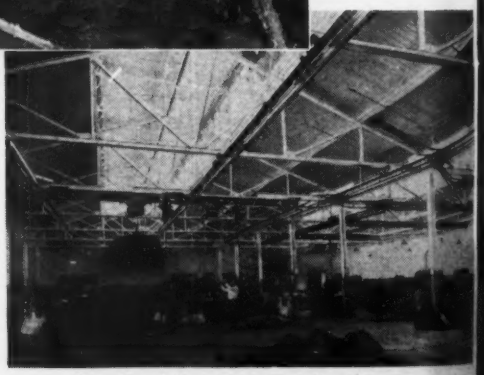

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Cranes serve slasher and storage.

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technical service... this term includes the many types of service rendered by a technical service laboratory. The dyestuff concern which undertakes these technical functions must use that essential extra ingredient of sound judgment... judgment which manifests itself in logical conclusions based on sound knowledge... General's technical service is founded on years of intensive laboratory research... and practical mill experience.

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✓6 TESTING

THE ***know how*** of manufacturing Stainless Steel Valves is based on experienced supervision of every step from the drafting room to the test bench. As pioneers in the manufacture of Stainless Steel Valves we have developed methods of design and manufacture which insure the highest quality.

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BY
CRABB

COTTON PICKER LAG — FLAT PINS
RAG OR SHODDY PICKER LAG
STEEL-FACED RAG OR SHODDY PICKER LAG
WASTE MACHINE MAIN CYLINDER
CARDING BEATER LAG

WE OFFER QUALITY

Our experienced staff is bending every effort to produce Pins and Lags of unsurpassed Quality.

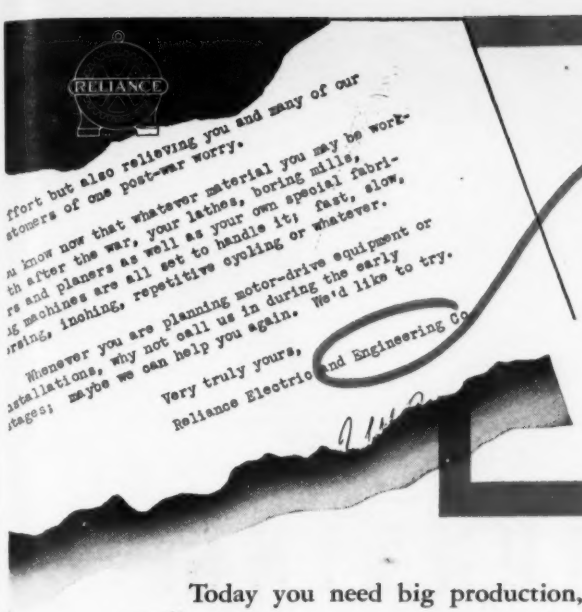
● ***SERVICE*** We are carrying in stock a large number of items, and increasing this stock, as necessary, to make immediate shipments. You will find it worthwhile to get our quotations and to profit by the results of our reorganization, and our ample supplies of steel and wood.

JUTE and FLAX CARDS PINS
COTTON WASTE PICKER PINS
RAG or SHODDY PICKER TEETH
MIXING PICKER TEETH and PINS
WASTE MACHINE PINS
DOFFER TEETH
CORDAGE PINS
TENTER PINS
FALLER BAR PINS
JENNY BAR PINS
GILL PINS
HACKLE PINS
COMB PINS

FALLER BARS—PLAIN or PINNED
HACKLES FOR MACHINE or HAND
GILLS PINNED
TENTER PLATES PINNED
WET and DRY COMBS
FOR THE BRUSH TRADE
LAGS—GILLS—TENTER PLATES
ROLLS—FALLER BARS
IRON RIVETS
PLAIN or STEEL CLAD LAGS FOR USE IN—
JUTE and FLAX CARDS
COTTON WASTE PICKERS

CARDING BEATERS
RAG or SHODDY PICKERS
WORKER ROLLERS—WOOD or STEEL
STRIPPER ROLLERS—WOOD or STEEL
LUMPERS
WIPING WASTE MACHINES
PINNED FEEDER SLATS
PLAIN SLATS
DOFFER PLATES
WASTE MACHINE—
DOFFER CYLINDERS—STEEL
PINNED FEED ROLLERS
FEED ROLL LUGS

WILLIAM CRABB & CO. **301-3rd Ave., Newark, N. J.**


RELIANCE
ffort but also relieving you and many of our
stomers of one post-war worry.
u know now that whatever material you may be work-
th after the war, your lathes, boring mills,
rs and planers as well as your own special fabri-
g machines are all set to handle it; fast, slow,
rsing, inching, repetitive cycling or whatever.
Whenever you are planning motor-drive equipment or
stallations, why not call us in during the early
tages; maybe we can help you again. We'd like to try.
Very truly yours,
Reliance Electric and Engineering Co.

These two words make motor-drive more than power!

Today you need big production, high quality.

Tomorrow? The same requirements, probably; but with new methods and processes.

Fortunately, in your motor-driven equipment you can meet today's needs and, at the same time, be preparing for tomorrow's unknown demands. It takes good motors AND ENGINEERING.

Adapted to your needs, Reliance motor-drive can do *many things* for you.

If you design or use motor-driven machines or equipment, you need to get the right answer to this question: *"What can we make a motor do besides supply power?"*

Reliance Application Engineers—production-minded men with wide experience in providing flexible power and control through the use of motor-drive—can help you get the answer.

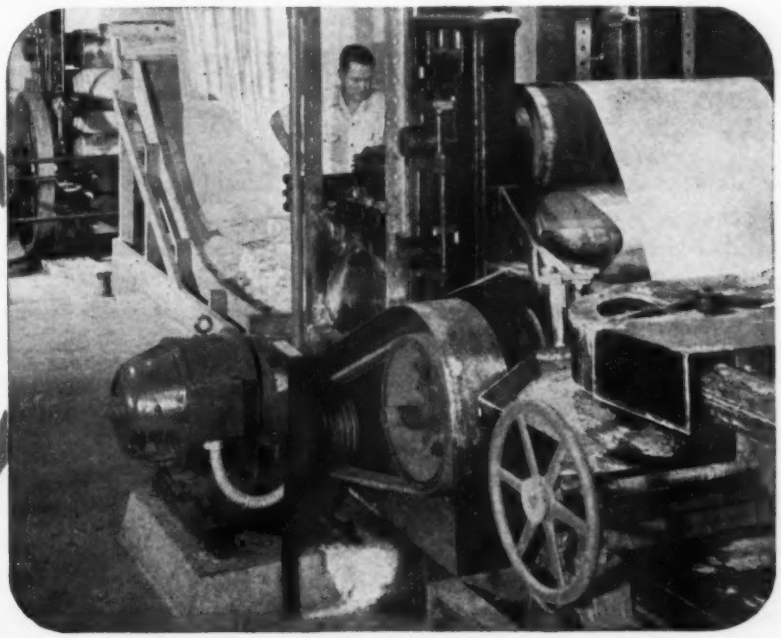
You will like the way they work. Just phone or write to our nearest office.

Motor-drive provides within itself a means of:

Speed Control	Reversing
Braking	Remote Control
Tandem Operation	Controlled Acceleration
Tension Control	Safety

Slow Speeds for inching, threading, inspection

Applying them to boost production and improve quality is APPLICATION ENGINEERING. That's our business.



Reliance Range Drives with direct-connected motors result in fewer parts, lower maintenance, less space; straight-run layouts with wide-range, all-electric speed-control reduce handling and permit continuous movement of material at highest suitable speed; the result is uniformly good quality and maximum output for each material and process.

RELIANCE ELECTRIC & ENGINEERING CO.
1088 Ivanhoe Road • Cleveland, Ohio

BIRMINGHAM • BOSTON • BUFFALO • CHICAGO
CINCINNATI • DETROIT • GREENVILLE, S. C.
HOUSTON, TEX. • LOS ANGELES • MINNEAPOLIS
NEW YORK • PHILADELPHIA • PITTSBURGH
PORTLAND, ORE. • ST. LOUIS • SAN FRANCISCO
SYRACUSE, N.Y. • AND OTHER PRINCIPAL CITIES

RELIANCE A-C D-C MOTORS

KEEP 'EM RUNNING WITH GENUINE H&B REPAIR PARTS

THE MAINTENANCE and repair of existing equipment in every industry has suddenly become one of the most vital factors in the war production program. This is particularly true of textiles as the requirements of our armed forces call for hundreds of millions of yards of fabric suitable for military purposes.

To meet this call for all-out production it is essential that every machine which is suitable for producing goods required by the military, naval and air forces should be kept in perfect running order. Efficient operation can only be expected when repair parts are used that are accurately machined with special tools to give years of service at the highest productive output.

To the users of our machinery we say—"Keep 'em running with genuine H & B repair parts". This service we believe to be of paramount importance and propose to maintain same to the utmost of our resources.

While a limited amount of new textile machinery will be available to mills operating wholly or nearly so on government contracts through the issuance of priority certificates, deliveries will depend to a great extent upon our being able to promptly obtain iron, steel and other materials necessary for its fabrication.

In addition to our regular products we have been engaged for the past year in the manufacture of munitions and every effort is being made to expand our operations to meet the needs of the hour.

H & B AMERICAN MACHINE CO.
Textile Mill Machinery
PLANT AT PAWTUCKET, R. I.

Boston Office, 161 Devonshire St.
Charlotte Office, 1201-3 Johnston Bldg.
Atlanta Office, 815 Citizens & Southern National Bank Bldg.
Export Dept., United States Machinery Co., 115 Broad St., New York, U. S. A.

ARE YOU GETTING THIS TRIPLE SAVING?

1. **Saving on Initial Cost:** The first cost of Armstrong's Cork Cots is low. And the toughness and durability of these cots give them a long initial service life.

2. **Saving on Assembly Cost:** Every Armstrong's Cork Cot is accurately sized to assure a smooth fit on the roll. This, plus the ready-glued inner surface, enables quick, easy installation.

3. **Saving by Rebuffing:** When Armstrong's Cork Cots do begin to show signs of wear, they can be rebuffed . . . made like new . . . for as little as ½¢ per roll. And each cot can be rebuffed two to four times for a total of three to five full-length service lives!

Armstrong's Cork Cots fully utilize cork's properties to spin top-quality yarn. Cork has a high coefficient of friction, which eliminates "eyebrows" and produces a strong yarn with fewer slugs. The yarn is even, too, because cork resists "hollowing out." End breakage is minimized, top roll lapping is reduced, and damage from hard ends is slight.

To get the full facts about Armstrong's Cork Cots, Accotex Cots, and Accotex Aprons, send for your free copy of "Modern Textile Roll Coverings." Write to Armstrong Cork Co., Textile Products Section, 8306 Arch Street, Lancaster, Pennsylvania.

Armstrong Is Headquarters for

ROLL COVERINGS

Cork Cots · Accolex Cots (synthetic rubber) · Cork Covers · Loom Take-Up Roll Coverings

ROLL SHOP EQUIPMENT AND SUPPLIES

ACCOTEX LONG DRAFT APRONS

TEMPLE ROLLS · CORK CONES

LOOM CLUTCH FACINGS

WINDER SPINDLE HEAD COVERS

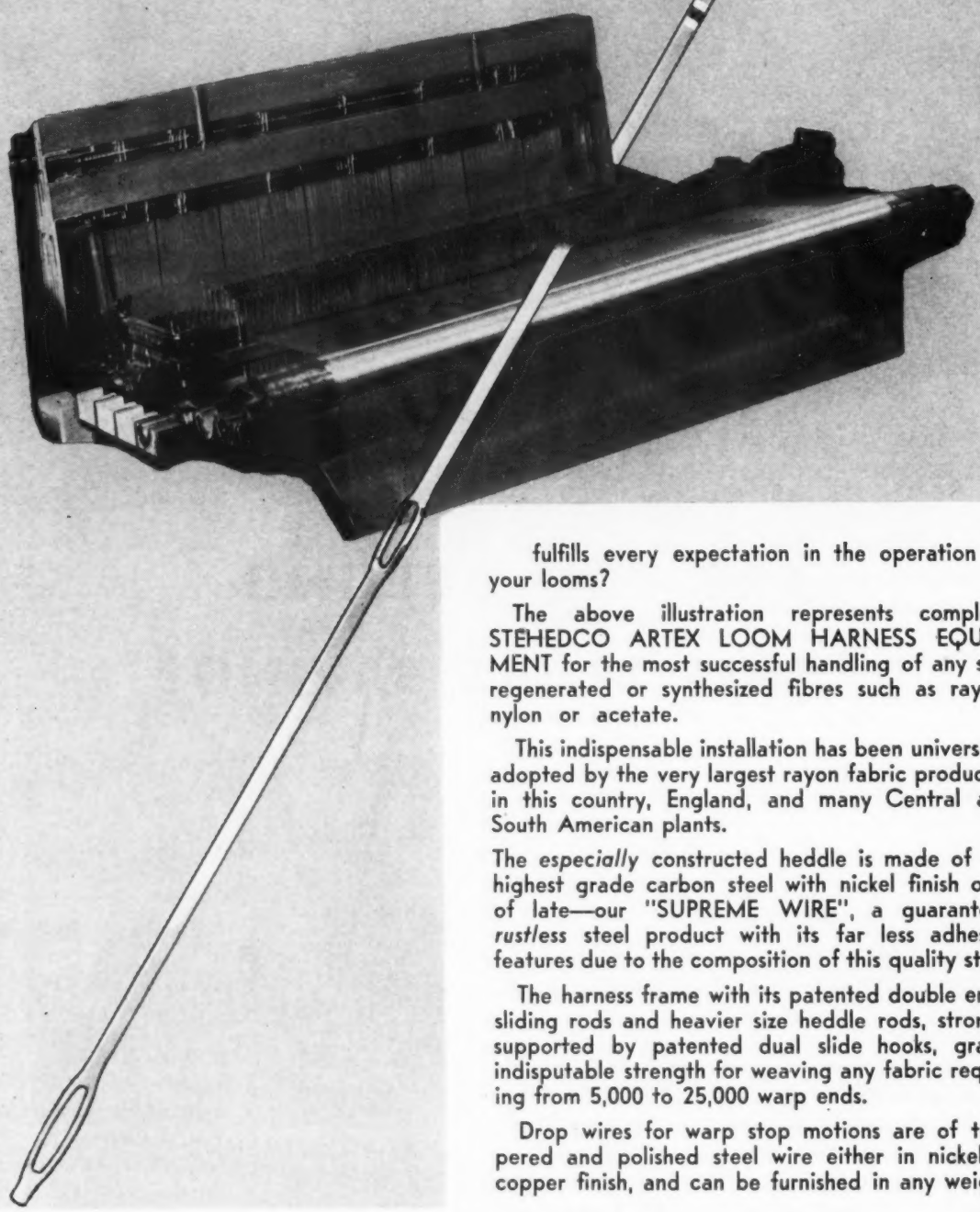
. . . and other textile mill supplies

ARMSTRONG'S CORK COTS

ACCOTEX COTS · ACCOTEX APRONS

Are You Interested In Getting

a Heddle that



fulfills every expectation in the operation of your looms?

The above illustration represents complete STEHEDCO ARTEX LOOM HARNESS EQUIPMENT for the most successful handling of any size regenerated or synthesized fibres such as rayon, nylon or acetate.

This indispensable installation has been universally adopted by the very largest rayon fabric producers in this country, England, and many Central and South American plants.

The *especially* constructed heddle is made of the highest grade carbon steel with nickel finish or—of late—our "SUPREME WIRE", a guaranteed *rust*less steel product with its far less adhesive features due to the composition of this quality steel.

The harness frame with its patented double ends, sliding rods and heavier size heddle rods, strongly supported by patented dual slide hooks, grants indisputable strength for weaving any fabric requiring from 5,000 to 25,000 warp ends.

Drop wires for warp stop motions are of tempered and polished steel wire either in nickel or copper finish, and can be furnished in any weight.

Buy complete STEHEDCO ARTEX LOOM HARNESS EQUIPMENT to obtain 100% results.

STEEL HEDDLE MFG. CO.

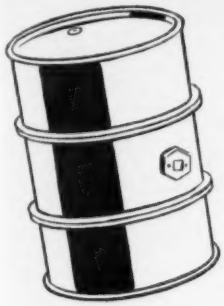
BRANCH OFFICES ALL OVER THE WORLD

Manufacturers of Superior

FLAT STEEL HEDDLES—HARNESS FRAMES—ALL TYPES OF LOOM REEDS—
TEMPERED DOGWOOD SHUTTLES—LOOM HARNESS ACCESSORIES

2100 W. Allegheny Avenue Philadelphia, Pa.

FIELD ENGINEERS IN EVERY DISTRICT

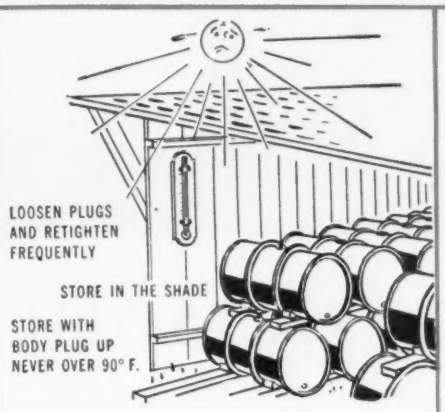


This is a drum containing acid

This is a new hand in your plant

...and here are 6 ways to keep both working for victory!

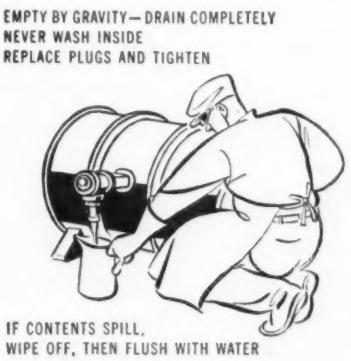
As soon as drum is received, check for leaks as corrosion-resistant lining may crack during shipment . . . Protective clothing also prevents accidents.



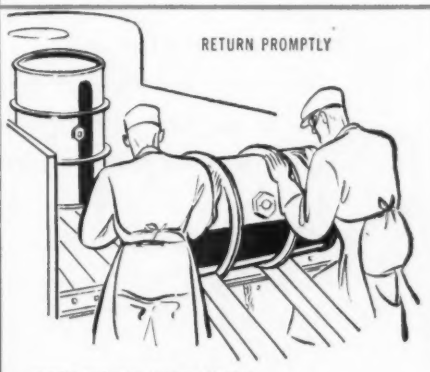
Remember—even water expands into steam under sufficient heat. Most chemicals require much less heat to build up dangerous internal pressures.

Hydrogen mixtures may build up inside a drum from the action of its contents on metal. A spark from a tool, a careless cigaret or match — and you have an explosion!

You never know until too late whether internal pressure will force a drum's contents out in a rush the minute you loosen the plug. *Always* play safe!


EMPTY BY GRAVITY—DRAIN COMPLETELY
NEVER WASH INSIDE
REPLACE PLUGS AND TIGHTEN
IF CONTENTS SPILL, WIPE OFF, THEN FLUSH WITH WATER

In emptying, never use pressure. After emptying, drain completely and replace plugs securely to prevent corrosion on the return trip. Never wash the inside of a drum!



Steel containers are literally worth their weight these days in ammunition. From the time they reach your plant, handle them carefully. Return them promptly.

To old hands at handling chemicals these precautions will be primer stuff — but old hands are becoming scarce in many a plant which uses substantial quantities of potentially dangerous chemicals. These suggestions are offered, therefore, as a help in impressing new employes with the importance of protecting their own safety and also conserving vital shipping containers. The suggestions are based on one of a series of bulletins issued by the Manufacturing Chemists' Association.

For more detailed help on specific chemicals conservation problems in your plant or training new employes to handle chemicals safely, write: MONSANTO CHEMICAL COMPANY, St. Louis, Missouri.

MONSANTO CHEMICALS

SERVING INDUSTRY...WHICH SERVES MANKIND

"E" FOR EXCELLENCE— The Army-Navy "E" burgee with two stars, "representing recognition by the Army and the Navy of especially meritorious production of war materials" over a two-year period flies over Monsanto.

THAT EXTRA "SOMETHING"

THESE are trying times for both makers and users of textile processing materials. Our armed forces can't wait for deliveries, yet the time-honored oils, fats and soaps that have long been used to process fibres and fabrics have had to be replaced without sacrificing quality.

Those who thought such items as edible oils, tallow or gelatine were irreplaceable, have been surprised by science. The replacements often prove better than former "staple" materials.

To make these new products of modern science work effectively, it takes more than just manufacturing ability. There's an extra "something" required. Let's call it RESEARCH.

Research includes the beaker, the bunsen burner, the microscope, the glistening laboratory — and more. It extends from "lab" to plant where theory must be proven in actual practice.

A packed briefcase in the hands of a Houghton Research Staff man who has been called in by mill executives—that's the "end use" of Research. Its beginning may have been ten or twenty years ago when men foresaw the possibility of both scarcities and real improvement.

We're justly proud of our augmented Research Staff which today backs up the efforts of more than 100 Houghton men the country over. We want you to use its facilities, its ability to roll up sleeves and tackle tough processing jobs. This cumulative experience is yours for the asking.

E. F. HOUGHTON & CO.

CHARLOTTE • PHILADELPHIA • CHICAGO

Houghton Research Experience can help on —

Cotton Warp Sizing ~ Soaking or Sizing Rayon Conditioning Wool ~ Sanforizing ~ Dyeing and Finishing ~ Lubricating Textile Machines. *USE IT!*

Strenuous wear AND maximum comfort

AMERICA'S fighting sons are hard on hose and underwear, but Standard's uniform quality yarns with a background of more than 66 years' spinning experience are equal to the strain. As the War's demand mounts for Standard yarns—in old and sometimes startlingly new applications—the civilian margin shrinks.

. . . . but this speeds the day of Victory.

SPINNERS · MERCERIZERS · DYERS · BLEACHERS · S-C-T

STANDARD DURENE · SELO · PREEMO · COMBED SAKS · THREADS · COMBED PEELERS

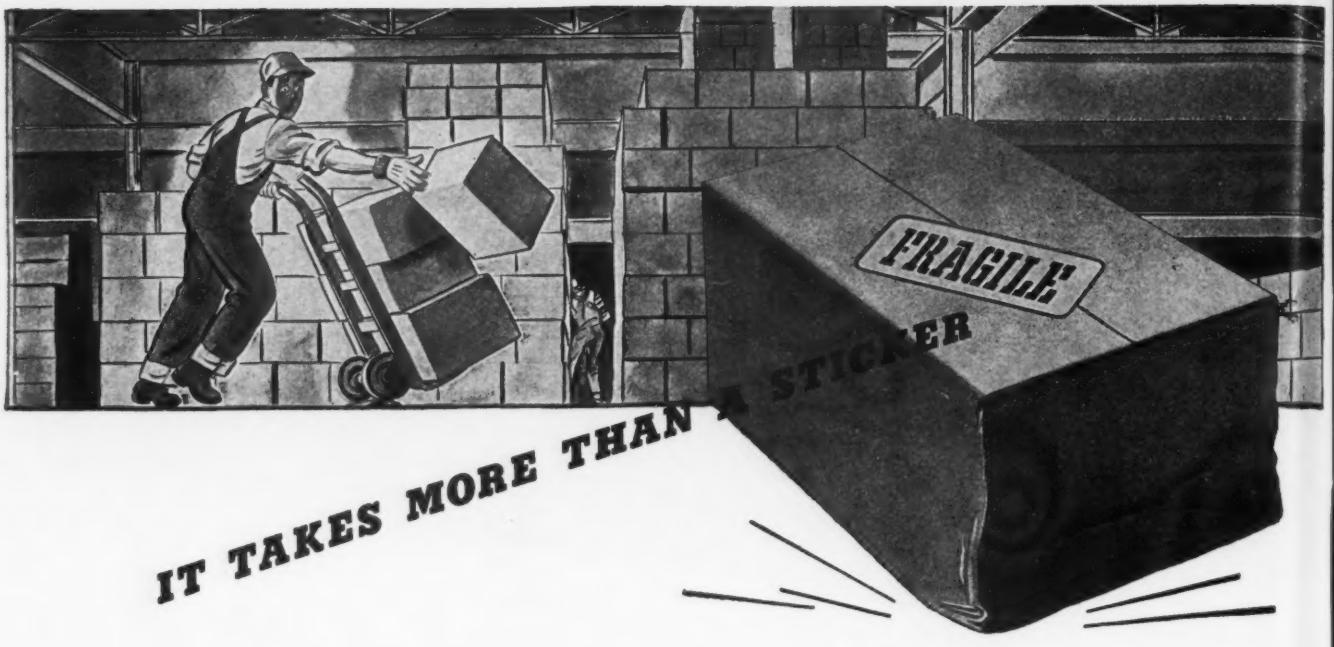
STANDARD-COOSA-THATCHER CO.

CHATTANOOGA, TENNESSEE • *Sales Offices: 804-6 Lafayette Bldg., Philadelphia, Pa.*

Branch Offices:

- New York, N. Y. 185 Madison Ave.
- Chicago, Ill. 940 Merchandise Mart
- Greensboro, N. C. Guilford Building
- Reading, Pa. Reading 6262

SPEED VICTORY—BUY WAR BONDS



IT TAKES MORE THAN A STICKER

TO FIGHT A TON-MILE GIANT

It takes strong, sturdy corrugated boxes to stand up under the pressure and pounding of doubled ton-mileage traffic. Boxes that take their part . . . and yours . . . when they're jostled and shoved and stepped on by Mr. R. R. Ton-mileage. Sure, this giant is rough and tough; he has his sleeves rolled up to win the war. But now, more than ever, he respects rugged corrugated packaging.

You will too. You'll respect it because it prevents unnecessary waste of man-power, machines, materials and time. You'll respect it because it's a practical cost-cutter. And, you'll be surprised to learn how economically corrugated boxes can be engineered to cushion the multiplied jolts of war-time shipping.

For an accurate cost estimate, get in touch with the H & D Package Laboratory. You'll welcome the overall savings it can show you.

Protect the Product

BETTER SEE H&D AUTHORITY ON PACKAGING

THERE'S A WORLD OF INFORMATION IN THESE FREE "TEXT-BOOKLETS"

Quick answers to shipping questions that pop up frequently; simple solutions to problems of distribution under any conditions—that's what you'll find in this "refresher course" in packaging. For free copies, write...

HINDE & DAUCH, Executive Offices:
4330 Decatur Street, Sandusky, Ohio

FACTORIES in Baltimore • Boston • Buffalo • Chicago • Cleveland • Detroit • Gloucester, N. J. Hoboken • Kansas City • Lenoir, N. C. • Montreal • Richmond • St. Louis • Sandusky, Ohio • Toronto

TOUGH as they come!

Weaklings among men and materials are not wanted at the fighting fronts in this war.

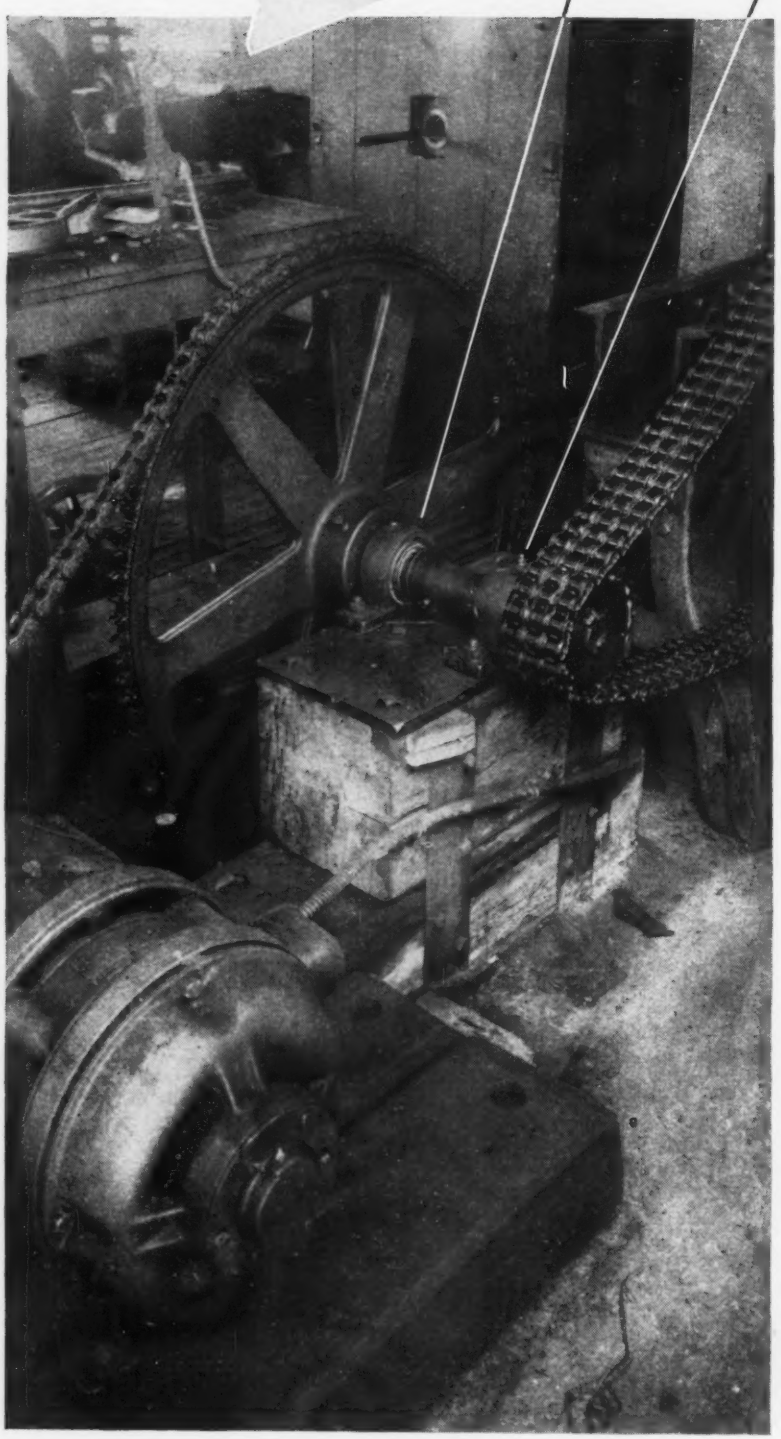
Formica is out there doing its bit in planes, tanks, jeeps, and in most of the ships of the navy. So much of it in fact that our whole equipment is required to turn it out and will be for the duration.

Many textile mills know that Formica parts for machinery are truly "tough as they come." In loom box linings, tenter frame openers, separator blades, inspection table tops, knitting machine platforms, this light long-wearing, nonporous material has made a distinguished record.

We are sorry that just now we are not able to serve our many friends in the textile field. But meantime war research is improving the product, and when it is again available it will be better than ever.

THE FORMICA INSULATION COMPANY
4668 Spring Grove Avenue
Cincinnati, Ohio

A COUPLE OF FAFNIRS THAT TIME FORGOT!



TIME HAS A HABIT of ticking unconcernedly along, leaving countless hundreds of Fafnir Ball Bearings to shift for themselves. And the Fafnirs are *just as unconcerned* about Time!

These Fafnirs weren't made to be coddled. Take, for instance, the application over at the left... although the shaft between the two Fafnir Pillow Blocks is short, there's a good, hefty two-way pull that ordinarily doesn't add up to long bearing life. But, the only attention they've received has been an occasional squirt of grease, during all the thousands of hours they've been on the job. They haven't been off that block since they went onto it... 5 years ago. Outside of lubrication, they haven't cost a dime in upkeep and repair.

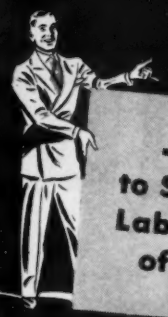
In applications like this, Fafnirs not only give long, trouble-free service, they save power costs and insure smoothness of operation. You'll find other Fafnir Ball Bearings of this same type... Standard Single Pillow Blocks... in wide use in many war-converted industries with remarkable service and performance records to their credit. Fafnir's famous Balanced Design... larger balls, deeper races... makes the difference, gives them "what it takes" to stand up under all kinds of loads and service conditions. The Fafnir Bearing Company, New Britain, Conn. Branch Offices: Atlanta... Birmingham... Boston... Charlotte... Dallas.

ARMY E NAVY

FAFNIR

BALL BEARINGS

Dayco Worsted Cots



—Are Mill-Proved to Save Time, Money and Labor in the Production of More Uniform Yarn

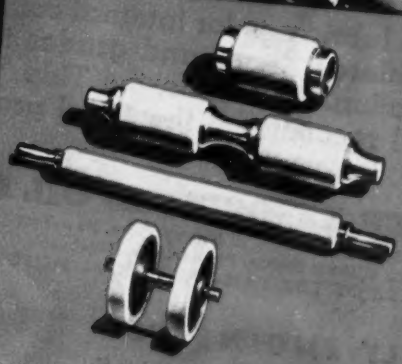
Backed by Dayton's "know-how" in the development and pioneering of synthetic rubber industrial products since 1934, these oil-proof Dayco Worsted Cots are mill-proved to outlast all others by 12 times while outperforming them every way.

1. Great savings in labor and time applying cots to arbors.
2. Increased cot life—outlast others by 12 times or more.
3. Eliminate wasted time and labor in removing and resetting the pressure on rolls after shut downs.
4. Greatly reduce power consumption on spinning and drawing frames.
5. Reduce matching-up through more uniform yarn production.
6. Run any kind of number and/or mixtures of wool, rayon and mohair with equal efficiency and a minimum of lint.
7. Simplify schedules—and give more and better production of the wanted numbers.
8. Reduce replacements of rolls on frames to an absolute minimum.

THE DAYTON RUBBER MFG. CO.
DAYTON, OHIO WAYNESVILLE, N. C.

Originators and Pioneers of Synthetic Rubber Products Since 1934

MAIN SALES OFFICE
Woodside Building Greenville, S. C.



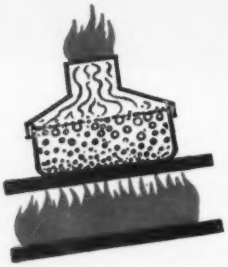
Dayco* SYNTHETIC **Roll Coverings**

A THOROBRED* PRODUCT BY DAYTON

* Reg. Trade Mark, The Dayton Rubber Mfg. Co.

*CARBON

TIDEWATER LUBRICANIA



DEFINITION: The Carbon Residue Test is a means of determining the amount of Carbon which remains after an oil has been evaporated under certain conditions of high temperature and under exclusion of air.

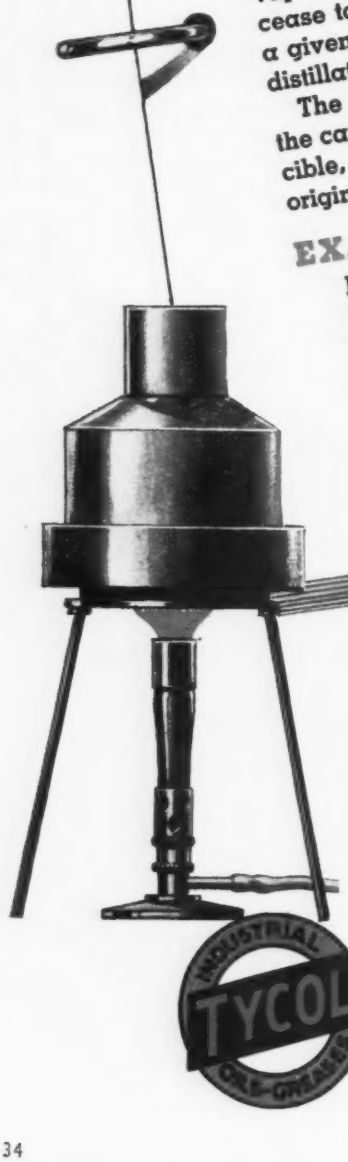
TEST (Conradson Carbon Residue): Following a carefully prescribed procedure with standardized equipment, a sample of the oil is heated and the oil vapors allowed to burn. After the vapors cease to come off the heat is raised for a given period to cause the destructive distillation of the remaining liquid.

The Carbon Residue is the weight of the carbonaceous residue left in the crucible, expressed in percentage of the original weight of the oil.

EXAMPLES:

(% Carbon Residue)	
Nil	Gasoline
Nil	Kerosene
Trace — 0.05	No. 2 Fuel Oil
0.03-0.25	Machine Oils
0.3-1.5	SAE 50 Motor Oil
1.5-4.5	Steam Cyl. Oils

SIGNIFICANCE: The Carbon Residue Test may be important with fuel oils or gas oils used in certain oil burning or gas manufacturing equipment. As an index to carbon forming tendencies of lubricating oils for use in internal combustion engines, it is totally unreliable. The quantity and nature of such engine deposits are greatly influenced by the oxidation susceptibilities of the oil and other factors peculiar to engine operation. Oils high in resistance to oxidation and otherwise most desirable for heavy duty operation often give relatively high Carbon Residue values.



OIL IS AMMUNITION

USE IT WISELY!

DRUMS! DRUMS! DRUMS!
War needs make it extremely important that all empty drums be returned immediately.

To assure the unvarying high quality of Tycol Products they are rigidly controlled and subjected to all essential tests during manufacture. Tycol lubricants for internal combustion engines are available in different types and grades to meet different conditions of operation. Call upon the Tide Water industrial engineers who will recommend the Tycol product best suited to your problem.

TIDE WATER ASSOCIATED OIL COMPANY
Eastern Division: 17 Battery Place, New York
Principal Branch Offices: Boston, Philadelphia, Pittsburgh, Charlotte, N. C.
MAKERS OF THE FAMOUS VEEDOL MOTOR OIL

INDUSTRIAL TYCOL OILS-GREASES

SCIENTIFICALLY ENGINEERED FOR EVERY INDUSTRIAL USE **TYCOL**

RESIDUE

*This is #4 of a series of informative messages concerning the meaning and significance of commonly used tests and terms employed to describe the characteristics of lubricating oils.

INDUSTRIAL LUBRICANTS

and ATTIRE

That lovely rayon you're accustomed to seeing in a wisp of lingerie or a filmy evening dress is proving the toughest, most durable yarn for tire cord that's ever come along the pike.

Industrial's "Continuous Process" yarn—a yarn the trade knows well for its unvarying uniformity and its virtual absence of knots and broken filaments—has the characteristics that make a better tire and better fabric too.

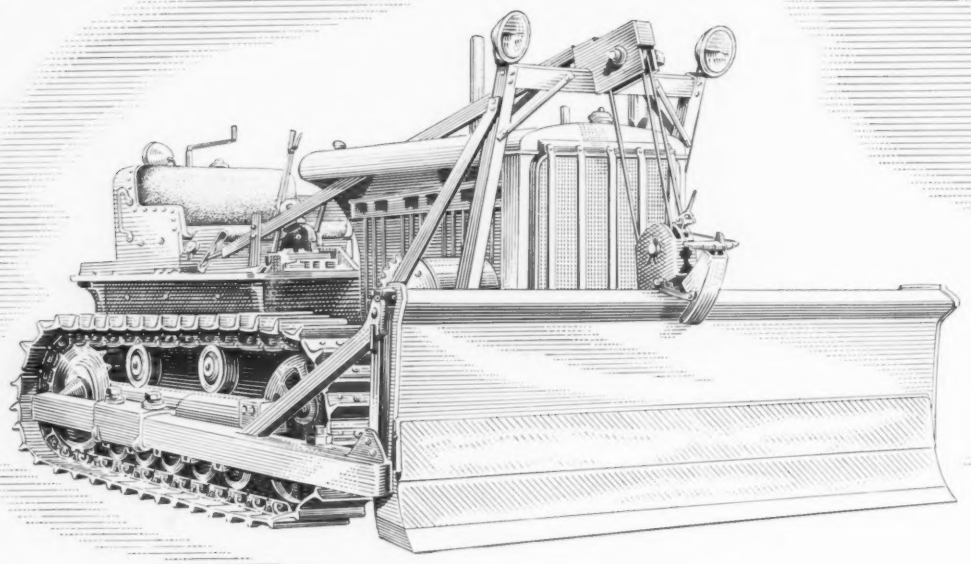
For the time being, most of this yarn is off to the wars—going into tires that must stand the gaff of high-speed bomber take-offs and landings—into supply parachutes, into electric wire insulation, into dozens of other war-born products.

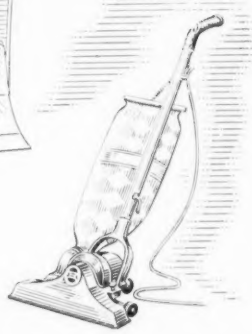
But don't think we've forgotten you and your need for undies and linings and dresses and the like. We're supplying as much fine yarn as we can for those things too. But once peace comes, just watch rayon really step out, and dazzle you with its new cloths and weaves and textures. When that great day dawns, Industrial's technical skill will keep Industrial products as far ahead then as "Continuous Process" yarn is today.

Manufacturers of "CONTINUOUS PROCESS" RAYON YARN and *Spun-lo KNIT RAYON CLOTH

*Reg. U. S. Pat. Off.

RAYON
WELCOME NEWS
COTTON
The hosiery industry, by skillful handling and adaptation of materials and equipment, is now producing beautiful and durable hosiery with *combinations* of cotton and rayon. Here is welcome news —and a feather in the cap of an industry that certainly has no shortage of ingenuity. For it is a development that makes the most of available yarns and at the same time adds to the variety of hosiery styles for the consumer. And it is the more remarkable because the production of these new combination-yarn stockings involves not only new twisting and dyeing techniques but also the most careful control over knitting operations. The use of good needles is particularly important. If your mill is planning or now producing this type of stocking, insist on Torrington Needles. Torringtons are *machine-made* and *machine-finished* to give the most accurate control over the quality of your knitting.
Torrington Spring Beard Needles
SINKERS • DIVIDERS SPLIT DIVIDERS
GIUSTI





The War Tractor hit upon Something in the Vacuum Cleaner

ON THE FACE OF IT, a vacuum cleaner and a military tractor live in different worlds. The cleaner's job is a light-duty one—and what matters most is easy operation. That's why Torrington Needle Bearings were chosen for use in this household machine. With its low friction coefficient and compact design, the Needle Bearing is one of the reasons modern vacuum cleaners can be as easy to handle as a new broom.

The men who drive the tractors, on the other hand, are concerned chiefly with their ability to stand up under the most severe service conditions. But when a new bomber runway is wanted by dawn, or shell holes must be repaired while bombs are still falling, it helps to have a tractor whose mechanism responds quickly and smoothly. So tractor designers, too, turned to the Needle Bearing for long life and ease of operation... and found many other advantages as well. It seldom needs attention, thanks to an effective system of lubrication... it withstands overloading more easily, because of high load capacity... and it speeds tractor production, through its ease of installation and ready availability for essential applications.

NEEDLE BEARINGS FOR ALL PURPOSES

LOOSE ROLLERS are produced in a range of sizes for assembly into low-cost, high-capacity anti-friction bearing units. They are particularly adaptable to applications where volume permits installation of the necessary equipment.

NEEDLE BEARINGS are complete, self-contained units consisting of a full complement of rollers and a thin, hardened outer race. They offer the advantages of small size, low cost, high capacity—and are easily, quickly installed.

QUILL BEARINGS consist of a full complement of rollers and a relatively heavy hardened outer race. They are furnished with or without inner races. Quill Bearings are adaptable to heavier load requirements than Needle Bearings.

SOMETHING TO KEEP IN MIND FOR POST-WAR. You'll soon be planning your post-war designs—or perhaps you've already started. There may be an idea for you in the Torrington Needle Bearing. Its advantages are the very features Tomorrow's customers are being educated to want—longer life, faster speeds, greater ease of operation, more compact designs, less need of attention. Whatever your design problems, let Torrington engineers help you. They are expert in adapting the Needle Bearing to specific applications. A long list of *typical* uses is included in Catalog No. 116.

THE TORRINGTON COMPANY

Established 1866 • Torrington, Connecticut, U. S. A.

Makers of Needle Bearings and Needle Bearing Rollers

New York Boston Philadelphia
Detroit Cleveland Seattle
South Bend San Francisco Chicago
Los Angeles Toronto London, England

LET'S GO! WAR · KEEP 'EM FLYING

TORRINGTON NEEDLE BEARINGS

RAYON OR ACETATE

Both can be successfully knitted by using either "NOPCO" Hosiery Treatment No. 1 or No. 2

Hosiery throwsters have discovered a better way to size rayon yarns for full fashioned hosiery knitting. By employing either of two Nopco Hosiery Treatments they practically eliminate press-offs in knitting. This means greater knitting production at lower cost.

Both treatments hold the twist without kinking and add lubricity to the yarn for knitting.

Booklets are available describing both Treatment No. 1 and No. 2. They are yours for the asking. These booklets contain valuable, practical information for the throwster. Why not write for your copies?

TAKE YOUR CHOICE

This type is solvent-soluble

"NOPCO" Hosiery Treatment No. 1

A solvent-soluble type blend of high-melting point synthetic waxes. Simplifies soaking procedure. Consistency and uniformity of treatment are easily controlled. Ideal for use by throwsters having limited drying capacity. No drying necessary following soaking operation. Requires less time.

This type is water-emulsifiable

"NOPCO" Hosiery Treatment No. 2

A water-emulsifiable synthetic wax compound, similar to No. 1 but in water soluble form. It is extremely easy and economical to use. No special equipment is needed; ordinary soaking methods can be used. Requires no organic solvents, eliminating toxic fumes and fire hazard. Well adapted for use on acetate yarns as well as the Viscose and Bemberg yarns.

National Oil Products Co.

HARRISON, NEW JERSEY

Boston Chicago Cedartown, Ga. Richmond, Cal.

NOPCO

REG. U.S. PAT. OFF.

"EVOLVED THRU RESEARCH"

THIS MAN

We repeat, let a "U.S." Ring Traveler expert—a practical mill man, not a theorist—come and talk to you for a while; and you'll see what we mean. All our research—all the years of experience we have, are no good unless we can focus them on your spinning and twisting ring traveler problems. And we stand ready to do just that, whenever you write or wire, at your convenience

THE NE-BOW

Prevents yarn ends flying out, provides ample headroom for threading—prevents binding on ring. Note "bend inward" at top of horn.

PERFECT BALANCE

Weighs same on both sides. Straight part of shank is in center of gravity. Distributes lubricant and wears evenly. Will not pivot twisting self and rayon.

THE BEVEL EDGE

Great pioneering "U.S." contribution to smooth spinning, twisting.

Eliminating angular edges, gives uniformity of tension, more even yarn, less "fly."

HEAT CONTROL

for better metal—dominates "U.S." production! Carburizing and tempering ovens are electrically controlled through pyrometers—for better performance.

U.S.

No. 10 OF A SERIES
BASED ON INTERVIEWS WITH TEXTILE MEN who want more production

...OMES TO *solve*, NOT SELL

He won't waste a minute of your time

for *he knows what it's all about* . . . . .

Talking to a textile mill man the other day about having a "U.S." Ring Traveler man come to his mill and see what he could do to increase the efficiency of the ring travelers, the mill man said: "No, we haven't got time to see those fellows. They come here and waste our time and the time of our men, and all they want to do is to sell us their particular brand of travelers . . . a lot of them don't know what it is all about, anyway."

Now, we're in business to sell ring travelers; but we have found from long experience that the only travelers that *stay sold* are the ones that exactly meet the conditions in any given textile mill.

And every "U.S." Ring Traveler man is a real mill man—an expert on all those conditions that influence ring traveler performance. He's come up from the bottom . . . been an overseer or super . . . run frames himself. He knows about traveler design, balance, lubrication, etc. He knows the importance of metallurgical control of metal, be it bronze or steel, to make it serve better and last longer. He knows about yarn weight and stock, and twist and heat and spindle speeds. In other words, he comes to your mill to review your traveler problems and help you solve them.

If you are not getting good service from your present traveler, and it is the fault of the traveler, he'll quickly find out and tell you so. If a better type or design of ring traveler will give you better results, he'll discuss that, too, and recommend it. If a change in traveler design would reduce the number of travelers you use and cut down the stock you have to carry, he can help there, too.

In other words, he "knows what it is all about." And in view of the unprecedented conditions under which the textile industry is working, faced with the inability to get adequate supplies and repair parts, etc., you can't afford to let *any* opportunities go by to get any helpful information of any kind that pertains to mill equipment.

SOLD UNDER THESE TRADE NAMES

Bowen Round Point Travelers
Bowen Square Point Travelers
Bowen Improved Vertical Bronze
Bowen Patented Bevel Edge
Bowen Flat Oval and Round Wire Travelers
Bowen Patented Ne-Bow Vertical
Bowen Patented Vertical Offset

U. S. RING TRAVELER COMPANY
PROVIDENCE AMOS M. BOWEN *President and Treasurer* **RHODE ISLAND**

BUY MORE WAR BONDS —
HELP THE U. S. RING THE BELL!

...RING TRAVELERS

A Traveler for Every Fibre

...E TRAVELERS THAT KEEP GOING!

U.S. RING TRAVELER CO.

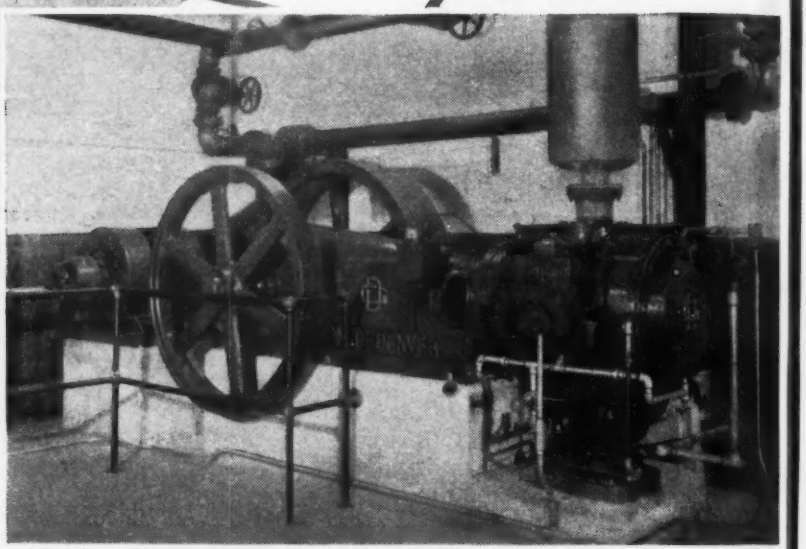
BEHIND THIS MIRACLE

The textile industry is performing production miracles to meet the wartime demands of our Army—our Allies—our civilians. Such "all-out" production demands equipment that won't let down under pressure.

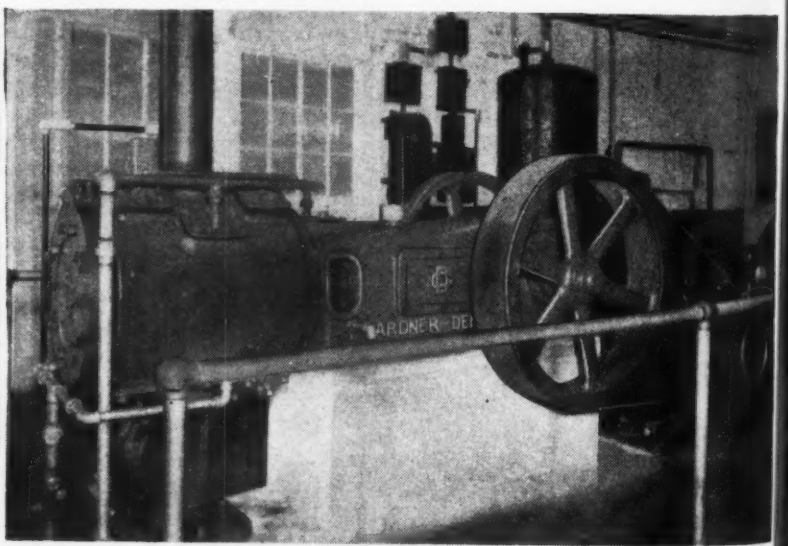
Gardner-Denver "RX" Horizontal Air Compressors are built for such a job. Engineered for heavy duty service under continuous operating conditions, these compressors are earning the approval of textile mill operators.

Maintenance men have found that Gardner-Denver compressors seldom require more than routine attention, such as the following maintenance rules indicate:

1. Crankcase oil reservoir should be kept filled to proper level with a high grade engine oil. Change the oil every two to four months, depending on hours of operation.
2. Only the best grade of air compressor oils should be used for lubricating compressor cylinders—be careful not to allow too much oil to reach the cylinders.
3. Clean intake air filter at least once every week, when atmospheric conditions warrant.
4. Test all safety valves daily, to prevent them from sticking.
5. Drain air line water traps frequently.

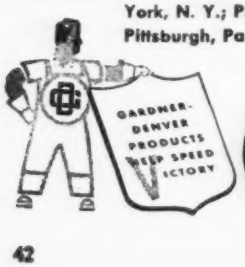


Gardner-Denver "RX" Single-Stage Air Compressors assure you the economy of automatically regulated air output, bring you the long, dependable and trouble-free service assured by rugged, dirt-free compressor construction. Increased compressor efficiency—the result of large and unrestricted valve and port areas—means that horsepower requirements remain unusually low. Gardner-Denver "RX" air compressors are available in capacities of 89 to 1292 cubic feet displacement per minute, and may be equipped for any type of drive.

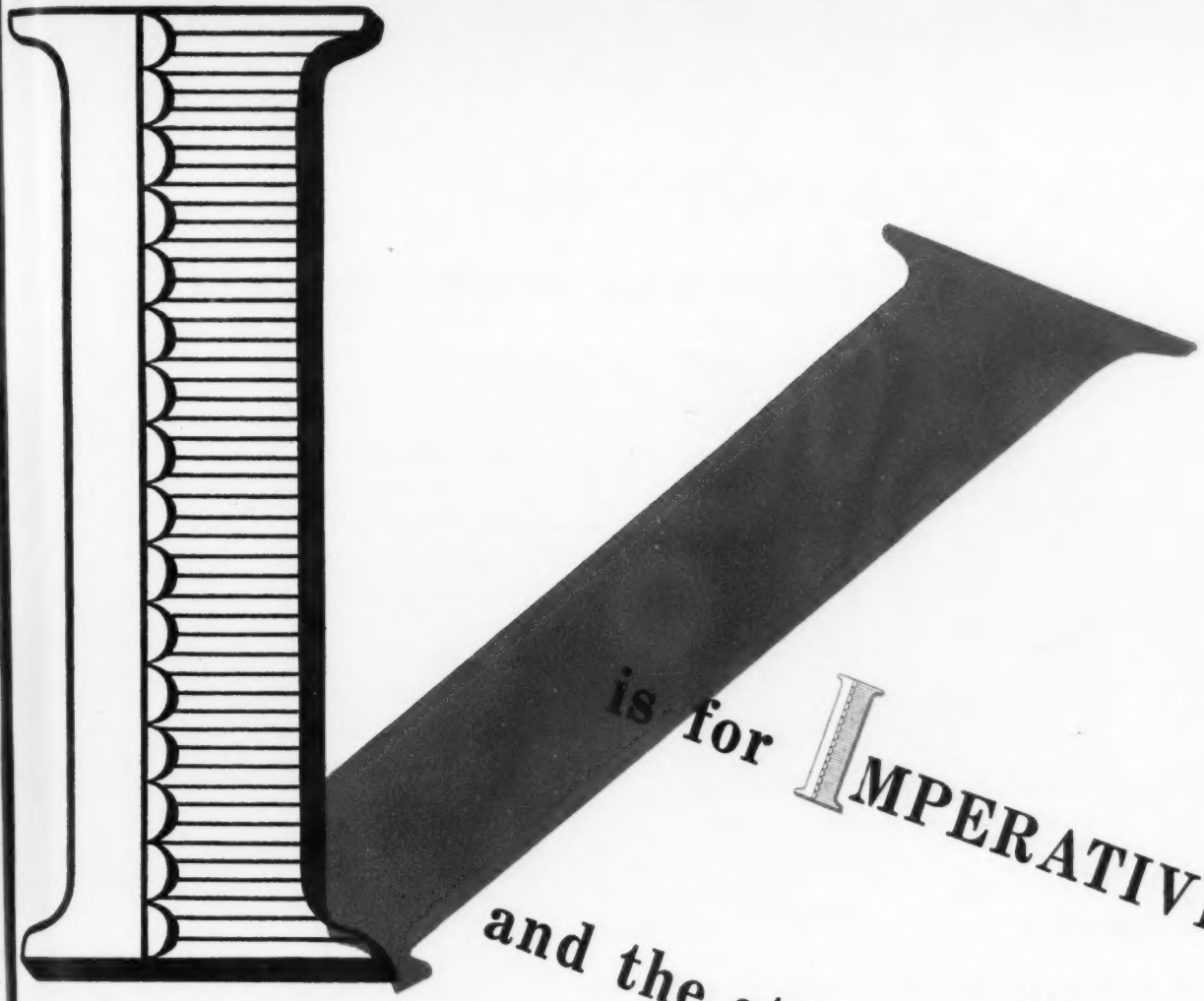


Built for heavy duty, continuous service for lint cleaning, cotton carding and other services—Gardner-Denver "RXV" Dry Vacuum Pumps use the same dirt-free power end as the "RX" compressor. Both single-stage and two-stage pumps are designed to produce high vacua above 28 inches h.g. Extra large valve areas keep horsepower requirements remarkably low.

Get all the facts from Gardner-Denver Company, Quincy, Ill.; Atlanta, Ga.; Birmingham, Ala.; Boston, Mass.; Hazleton, Pa.; Knoxville, Tenn.; Washington, D. C.; New York, N. Y.; Philadelphia, Pa.; Pittsburgh, Pa.



GARDNER-DENVER *Since 1859*



Ideas have always been the secret weapons of American progress...the ingenuity that has initiated new ways and means for getting things done better and faster.

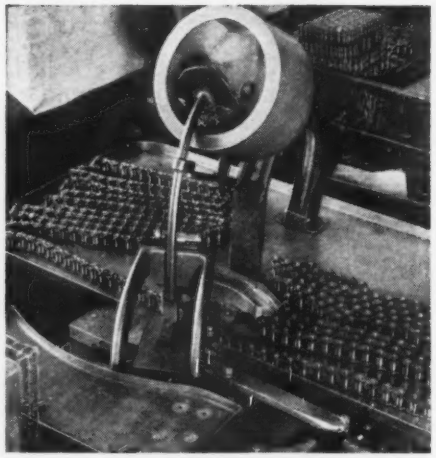
In these times of emergency... of imperative needs for certain chemical materials, ideas born of chemical research have repeatedly come through. New materials and new uses for others now are making it possible to sustain an ever-mounting flow of supplies to war industries. Likewise, it is enabling many manufacturers of civilian goods to circumvent critical material shortages.

If you are confronted with a problem arising out of inability to obtain chemical materials for your high priority business, or if you are faced with suspended production due to the non-priority nature of your manufacture, call upon Cyanamid. Our research chemists and engineers will be glad to apply their facilities to the solution of your problem. There is no obligation.

AMERICAN CYANAMID
AND CHEMICAL CORPORATION
A Unit of American Cyanamid Company
30 ROCKEFELLER PLAZA, NEW YORK, N. Y.

MANUFACTURERS OF
SULPHONATED OILS • PENETRANTS • FINISHES • SOFTENERS
SIZING COMPOUNDS • DECERESOL* WETTING AGENTS
AND OTHER SPECIALTIES FOR THE TEXTILE INDUSTRY
*Reg. U. S Pat. Off.

better Methods that use fewer hands



Automatic cotter pin inserting machine for chain belt manufacture assures greater accuracy and uniformity.

Machine design methods, by taking over tedious and laborious tasks in industry, have helped to create in America a civilization which allows men to live as well as to work. An example of progressive machine design that solved a very difficult problem is this Baldwin-Duckworth cotter pin inserting machine for chain belt manufacture. It makes an automatic operation of a task that previously required much hand labor—and at the same time provides greater accuracy and uniformity in the finished product.

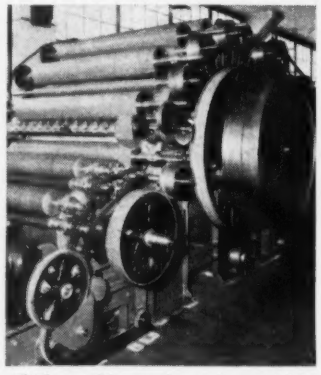
better Drives with Baldwin Roller Chain Belts

This and many other improvements in chain belts are of significance in the solution of drive problems which face maintenance engineers. Baldwin Roller Chain Belts insure accurate, split-second timing, deliver virtually 100% efficiency, absorb all shocks and give perfect maintenance of speed ratio. In fact, *roller chain belts are the only type of transmission that can absorb shock loading without loss of speed ratios and efficiency.*

Baldwin-Duckworth offers a comprehensive catalog on roller chain belts for the transmission of power and conveying materials. But for specialized applications involving any machine which you may be redesigning, or which needs greater drive or timing efficiency, call in a Baldwin man. He will be glad to work with you.

BALDWIN-DUCKWORTH Division of Chain Belt Company, 346 Plainfield Street, Springfield, Mass.

EXAMPLE



This breast drive woolen card uses Baldwin Roller Chain Belts to assure:

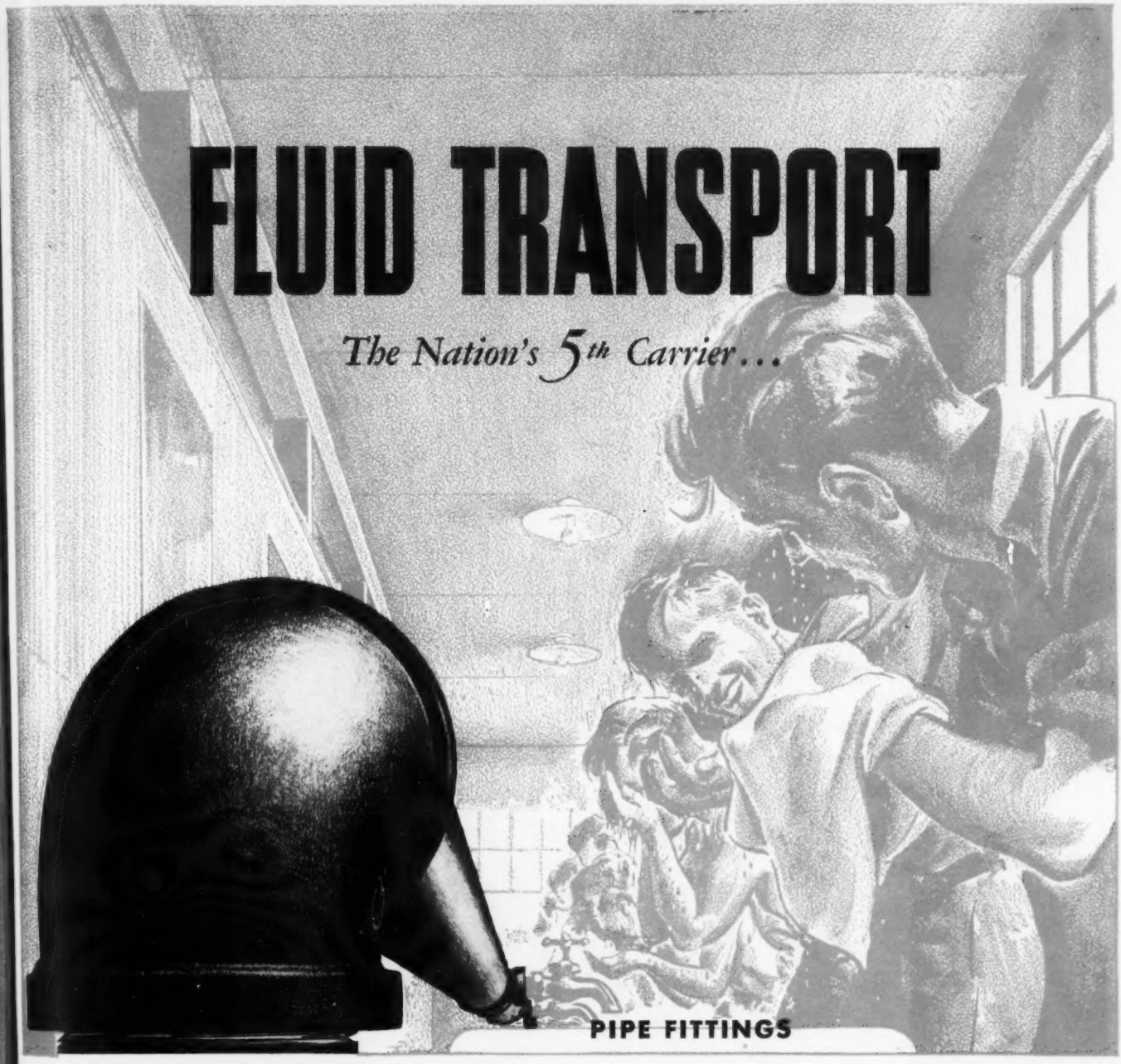
1. Continuous jerk-free smoothness of operation.
2. Quiet, positive slip-free transmission of power.
3. Virtually 100% efficiency.

IT'S BALDWIN-EQUIPPED

better Drives through better Methods

BALDWIN

ROLLER CHAIN BELTS



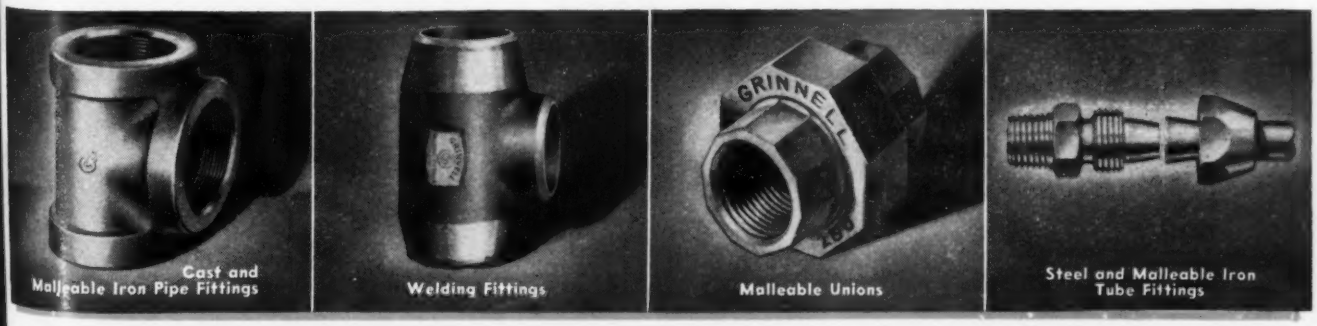
WASHING 50,000 FACES is a major job of FLUID TRANSPORT. Imagine the number and variety of pipe fittings needed to install water, heat and sewerage systems in an army camp large enough to house and train many thousands of recruits.

Pipe systems like that define the true function of Grinnell FLUID TRANSPORT. Included are every type of pipe fittings, from the tiny fitting for ¼" tubing to the extra heavy welding fitting for a 24" steam power line.

For new war construction, or maintenance and repair of existing piping, call Grinnell Company, Inc., Executive Offices, Providence, Rhode Island. Plants and offices throughout the United States and Canada.

GRINNELL

WHENEVER **PIPING** IS INVOLVED



What Happens When a V-Belt Bends

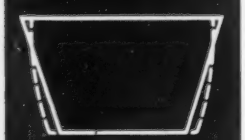


FIG. 1

FIG. 2

435

This Test Shows the Very Real Advantage of the CONCAVE SIDE!

Grip the side-walls of *any* V-belt as it bends. You will *feel* its sides change shape. The top of the belt becomes narrower because it is under tension. The middle of the side-wall bulges out. You will see that a *straight-sided* V-belt must assume, when it bends, the shape shown in figure 1 (on the left)—a shape that *doesn't fit the sheave groove.*

Now try the same test with a Gates Vulco Rope. You will find that the *same shape change merely straightens* the precisely engineered Concave Side (See figure 2). There is no side-bulge. This insures uniform side-wall wear:—*longer life!* Moreover, the full side-wall of the belt uniformly grips the pulley. It therefore carries heavier loads without slipping—a saving in belts and also a saving in power.

Only belts built by Gates are built with the Concave Side, a Gates patent.

THE GATES RUBBER COMPANY

Engineering Offices and Stocks in All Large Industrial Centers

GATES VULCO ROPE DRIVES

CHICAGO, ILL. 549 West Washington

DALLAS, TEXAS 2213 Griffin Street

NEW YORK CITY 215-219 Fourth Avenue

BIRMINGHAM, ALA. 801-2 Liberty National Life Building

DENVER, COLO. 999 South Broadway

CHARLOTTE, N. CAROLINA 507 Builders' Building

GREENVILLE, S. CAROLINA 104 West Washington Street

ATLANTA, GA. 738 C & S. National Bank Building

Here at last . . . the answer to Corrosion Problems

ANTI-CORRODE

New Liquid Safeguard Developed by Cities Service

Anti-Corrode, Proved Perfect by Months of Laboratory Testing, Meets Severest Corrosion Requirements. It's Easy, Economical to Apply.

After months of laboratory research and rigorous service tests, Cities Service takes pride in announcing the development of a new and *completely effective* corrosion preventive—Anti-Corrode.

This new liquid safeguard, by virtue of its special properties, and its reasonable cost, is hailed by many engineers as a perfect answer to the vital problem of metal conservation that American industry faces today.

METHODS OF APPLICATION

Anti-Corrode can be applied to raw stocks, finished parts, or to complete machines during storage, assembling or shipping. It is easily applied by dipping, brushing, rubbing, hand or power spraying—and provides a safe film which does not harden, become brittle or crack.

WEATHERING

Anti-Corrode is not affected by rain, salt air, oxygen bearing moisture, etc.

ODOR

Anti-Corrode has no disagreeable odor.

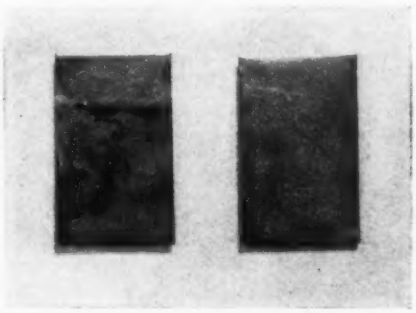
CHEMICALLY INERT

Anti-Corrode is chemically inert to ferrous or non-ferrous metals. Therefore, it can cause no injury to any metal to which it is applied or with which it may be brought in contact.

FINGER STAINS

Surfaces coated with Anti-Corrode can be handled freely without danger of rust spots caused by hand acid.

ANTI-CORRODE MEETS U. S. NAVY TEST



BOTH STRIPS of freshly ground steel pictured here were immersed for 20 hours in a 3% salt solution. Strip on left was untreated; strip on right, coated with Anti-Corrode, shows no trace of rust. (Even after 90 hours of immersion Anti-Corrode coating still resisted rust.)

A LUBRICANT, TOO

Anti-Corrode is compatible with drawing compounds; there is no need to remove it from metal about to be drawn, stamped or otherwise formed.

IDEAL FOR MANY USES

Anti-Corrode can be used on almost every kind of metal or metal equipment—*indoors or outdoors*. Fencing, piping, tubing, wire, wire mesh, girders, sheet metal, metal stock, machinery, trucks, spare automotive parts, tools, metal containers—all need the protection of this new corrosion preventive.

ECONOMICAL

In accordance with regular U. S. Navy Test procedure, Anti-Corrode proved far superior to other leading anti-rust compounds costing as much as *25% to 40% more per gallon.*

Whatever metal equipment you may have, you owe it to yourself to investigate the money-saving advantages of Cities Service Anti-Corrode. (One gallon of Anti-Corrode protects approximately 1200 square feet of sheet metal.) Send the coupon below for further information on how to obtain an adequate sample of Anti-Corrode FREE.

CITIES SERVICE OIL COMPANY
Room 1391,
Sixty Wall Tower, New York.

Gentlemen: I'd like to test Anti-Corrode on my own equipment FREE OF CHARGE. Send me the details.

Name.....

Title.....

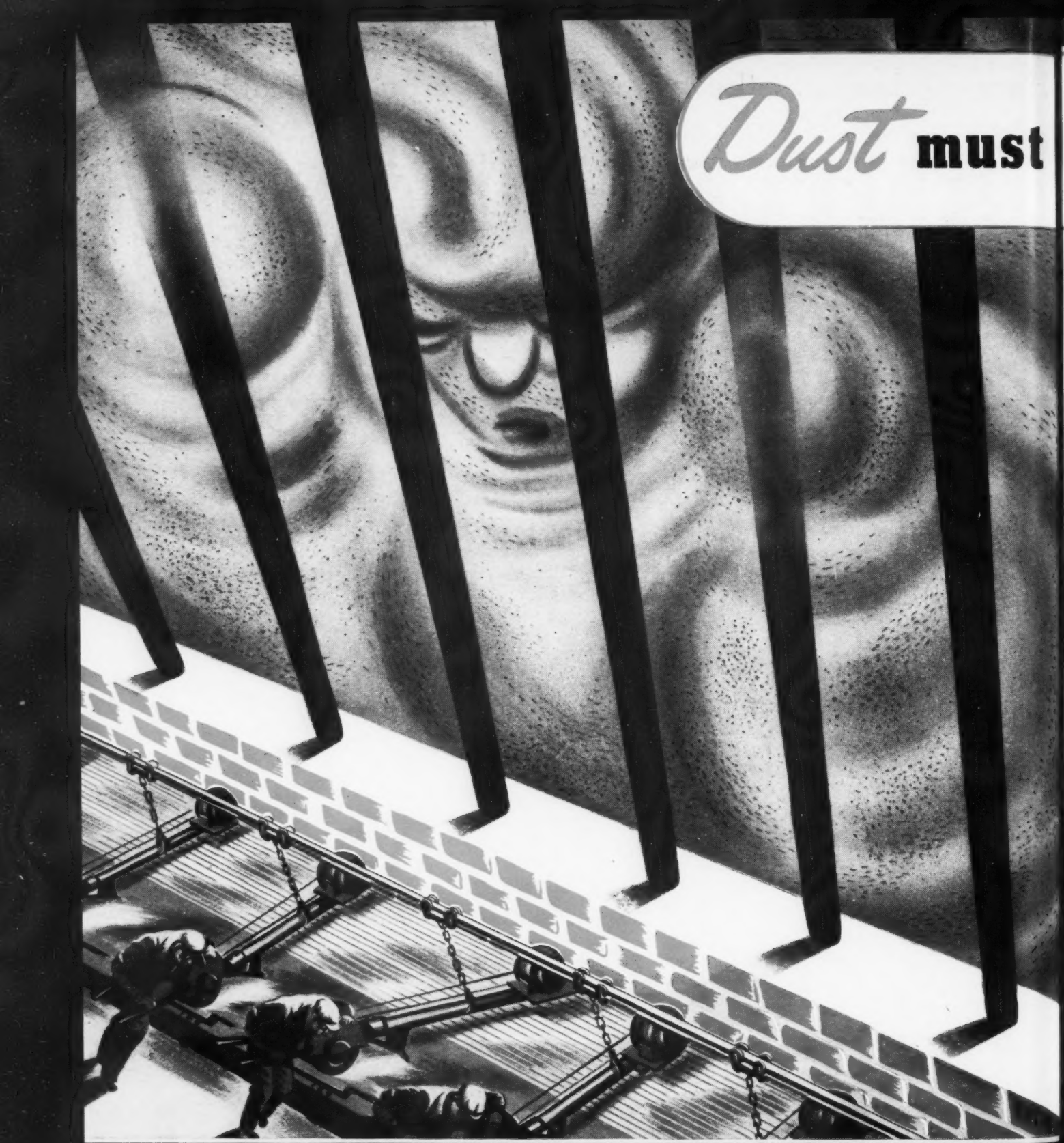
Company.....

Address.....

OIL IS AMMUNITION—USE IT WISELY!

CITIES SERVICE OIL COMPANY
NEW YORK · CHICAGO

IN THE SOUTH
ARKANSAS FUEL OIL COMPANY
SHREVEPORT, LA.



Sturtevant Systems

REG. U. S. PAT. OFF.

AND EQUIPMENT

ENGINEERED FOR PRECISION-VENTILATING, HEATING, AIR CONDITIONING, DRYING, DUST AND FUME CONTROL, PNEUMATIC CONVEYING, MECHANICAL DRAFT

st get life imprisonment in 194V

Under the lash of all-out production, Industry has learned many new reasons for keeping a close watch on Dust—and its treacherous ally, Fumes. Utilizing the most advanced development of Sturtevant Air Research and Engineering, industry has been able, through effective air control, to boost output, pare down operating costs, and improve product quality—to a degree never before thought possible.

Take the manufacture of aircraft engines, for example. Destructive dust from buffing and grinding operations must be whisked away as soon as it leaves the wheels. But there's an extra twist that Sturtevant Air Engineering gives this job. Instead of carrying off and wasting the conditioned room air, it's whirled through dust separators, purified and returned to the room with all its valuable heat intact. Savings at the coal pile run as high as $8,000 a year.

In giant booths where motorized equipment is spray painted, you'll find another Sturtevant dividend. Controlling the toxic fumes that spurt from spray guns was not enough. All air entering the room is now purged of dust or anything else that could impinge on freshly painted surfaces. Repainting was minimized and the production line went into high gear.

Processing metals at Victory-speed and efficiency calls for still another touch of Sturtevant genius. Acid fumes, destructive enough to eat through steel beams and keep labor turnover as high as 50% are now precision-controlled. Absenteeism is down to normal, costly equipment safeguarded and production quotas reach a new high.

And there are hundreds of new products, such as the miracle of making artificial wool from cow's milk, born with an inherent fume control problem that Sturtevant had to lick before production could be achieved.

Remember, all these advantages of dust and fume control—that are helping turn out better war goods, faster and more efficiently—will be equally important when industry returns to competing for postwar markets. Without "air at work," no plant can expect to compete on an equal footing.

ENGINEERED AIR will make a difference.

Yes, air that is engineered to serve efficiently—not only in dust and fume control but in all phases of industrial air conditioning, heating, ventilating, drying, pneumatic conveying, and mechanical draft—will make the difference between profit and loss in many a plant. And with new war-won knowledge, backed by experience as the pioneer in air-handling, Sturtevant will be in a position to find the most efficient and economical solution to your problems.

B. F. STURTEVANT COMPANY

Hyde Park, Boston, Mass. *Branches in 40 Cities*

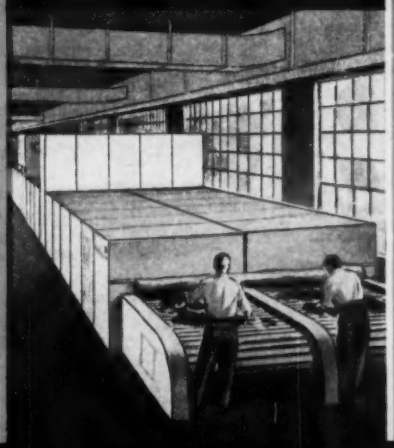
B. F. Sturtevant Company of Canada, Ltd., Galt, Toronto, Montreal

STURTEVANT—FOUNDER OF THE AIR HANDLING INDUSTRY

Sturtevant
REG. U.S. PAT. OFF.
Puts Air to Work

IR CONDITIONING

DRYING AND HEATING



VENTILATING

DUST AND FUME CONTROL

GALVANIC CORROSION

OF DISSIMILAR METALS

And how milliampere Gremlins may be foiled at their own game

Today, dissimilar metals must frequently be used in more or less untried combinations. This is made necessary by metal shortages and urgent production needs.

Such combinations when exposed to liquids or moisture can result in serious galvanic corrosion. Therefore galvanic couples now merit much closer attention by plant and design engineers than was previously necessary.

Also, since its effects are not readily distinguished from those of the ordinary types of corrosion, it frequently is blamed for troubles it could never cause. Yet when really present, galvanic corrosion may be very serious.

Practices for controlling Galvanic Corrosion

1 Select combinations of metals as close together as possible in the Galvanic Series.

2 Avoid combinations where the area of the less noble material is relatively small. It is good practice to use the more noble metals for fastenings or other parts in equipment built largely of less corrosion resistant material.

3 Insulate dissimilar metals wherever practical. If complete insulation cannot be achieved, anything such as paint or plastic coatings at joints to increase the resistances of the circuit will help.

4 Keep dissimilar metals as far apart as possible. This rule applies even when the actual connection between the metals is made external to the corrosive liquid.

5 Apply coatings with caution. For example, when painting—do not paint the less noble material without also coating the more noble, otherwise greatly accelerated attack may be concentrated at imperfections in coatings on the less noble metal. *Keep such coatings in good repair.*

6 Prevent or limit aeration of the corrosive liquid as much as possible to sustain the polarizing effect of the hydrogen film which forms on bare cathodic surfaces.

7 If practical, add chemical inhibitors to the corrosion solution according to the nature of the solution to be inhibited.

8 Avoid joining materials well apart in the series by threaded connections, as the threads will probably deteriorate excessively. Brazed joints are preferred when practicable.

9 Whenever possible, install relatively small replaceable sections of the less noble material at joints and increase the thickness of the less noble material in such regions; for example, by using extra heavy wall nipples in piping or by attaching replaceable pads to critical surfaces.

10 Install pieces of bare zinc or steel to provide a counteracting galvanic protection effect to suppress galvanic corrosion.

•

INCO's Technical Service is prepared to assist metal users in solving galvanic corrosion problems. Available data from INCO's Corrosion Files for a particular combination of metals will be furnished wherever possible. Aid can also be extended in applying general principles to specific problems.

As a first step in securing INCO's help on a specific corrosion problem, write for a copy of the Corrosion Data Work Sheet.

THE INTERNATIONAL NICKEL COMPANY, INC., 67 Wall Street, New York, N. Y.

GALVANIC CORROSION *and* THE GALVANIC SERIES

Galvanic Corrosion is caused by contact or connection of unlike metals in a corrosive liquid. Because generation of electric current is associated with galvanic corrosion, the metals act like a galvanic cell and corrosion action may become more serious and more rapid than that fostered by the corrosive liquid acting on the metals separately. Such action may be prevented or minimized by using the Galvanic Series to guide the selection of metal combinations.

GALVANIC SERIES

Corroded End (anodic, or least noble)

Magnesium
Magnesium alloys

Zinc

Aluminum 2S

Cadmium

Aluminum 17ST

Steel or Iron
Cast Iron

Chromium-iron (active)

Ni-Resist

18-8 Stainless (active)
18-8-3 Stainless (active)

Lead-tin solders
Lead
Tin

Nickel (active)
Inconel (active)

Brasses
Copper
Bronzes
Copper-nickel alloys
Monel

Silver solder

Nickel (passive)
Inconel (passive)

Chromium-iron (passive)
18-8 Stainless (passive)
18-8-3 Stainless (passive)

Silver

Graphite
Gold
Platinum

Protected End (cathodic, or most noble)

According to studies and practical experience from which the Series resulted, metals within a group have no strong tendency to produce galvanic corrosion of each other and therefore make relatively safe combinations unless the area of the less noble is markedly smaller.

The coupling of two metals from different groups and distant from each other in the list can result in galvanic, or accelerated corrosion of the less noble material. The farther apart the metals stand, the greater will be the galvanic tendency.

Although the arrangement of metals in the Series is based on results of experiments and practical experience involving many common corrosives, it cannot replace the need for tests when unusual corrosives are encountered or when other unusual conditions prevail that may cause major shifts of the relative positions of metals in the Series.

FULLING is faster with YARMOR 302-W

REPORTS show that fulling is as much as 30% faster with Yarmor* 302-W Pine Oil in the soap-soda ash stock solution.

In heaviest overcoating or lightest goods, all fibers are thoroughly wetted and penetrated. Cleansing is better, because Yarmor completely emulsifies grease and dirt. Rinsing is cleaner, because insoluble precipitates are held in suspension and prevented from redepositing on the cloth. And Yarmor's lubricating action means less floc on the fulling mill floor—more weight in the cloth.

To cut down your fulling costs, and produce better-looking fabrics — use Yarmor 302-W. Stocks are available.

*Reg. U. S. Pat. Off.

MORE "FOOLPROOF" FORMULAS OBTAINABLE

Hercules developed Yarmor 302-W especially for the woolen industry—to provide a wider range of stable soap-soda ash stock solutions than ordinarily available. Thus, in addition to its excellent wetting, emulsifying, and detergent-assistant action, Yarmor 302-W is also easier to work with. It will help you get those woolens through in record time.

NAVAL STORES DEPARTMENT

HERCULES POWDER COMPANY

INCORPORATED

994 Market Street, Wilmington, Delaware

00-78

The...

ORANGE LINE OF TEXTILE LEATHERS

Better Performance — Lower Costs — from the line tanned and manufactured under single control...

When you equip your looms with leathers from Graton & Knight's ORANGE LINE, you can be sure you are getting products each made — from green hide to final inspection — with its ultimate use in mind. Leather for "Pickmaster" pickers is finished one way — for "Two-Fold" check straps another way — and so on.

Graton & Knight tans its own leather, and has developed more than 30 variations of five basic formulas. Each step in the manufacturing process is planned according to the qualities desired in the finished products.

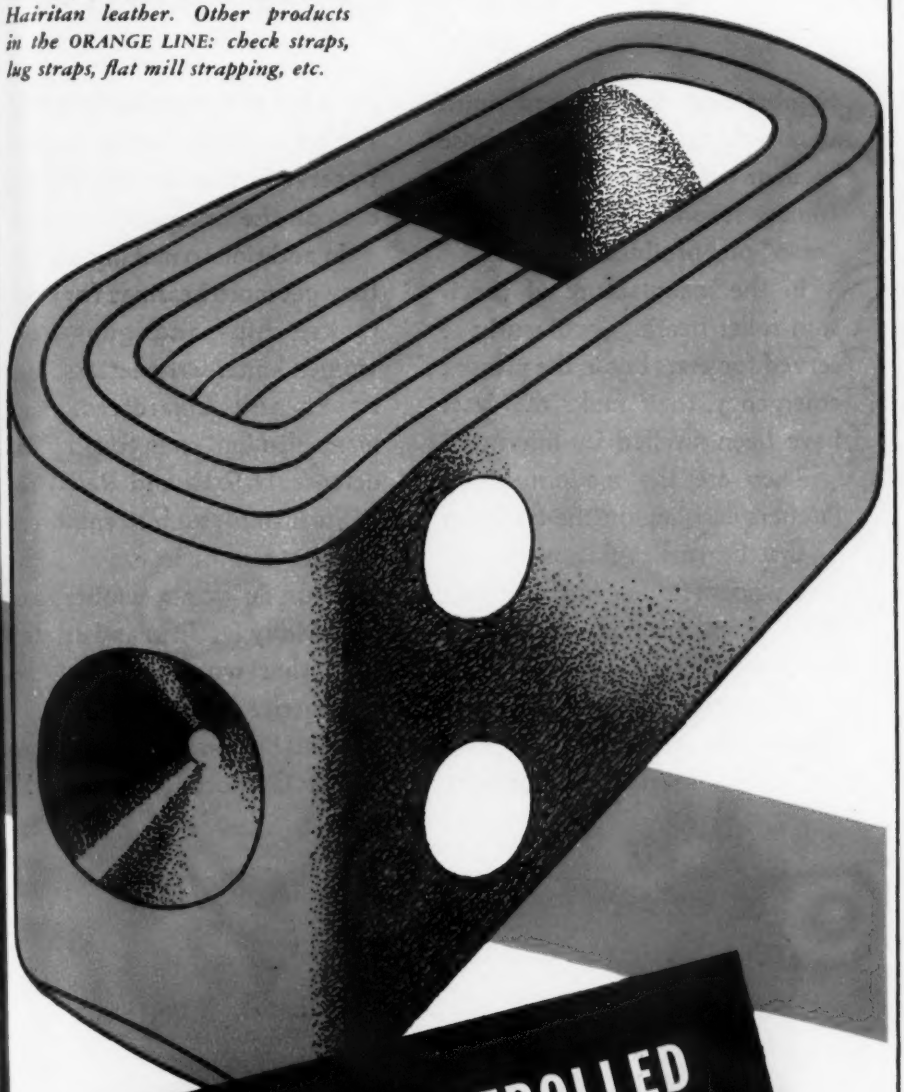
The ORANGE LINE is built around Graton & Knight's famous "Hairitan" loom leathers — made from a superior type of leather which has been acknowledged equal or superior to any "hair-on" leather ever tanned in this country or abroad. "Hairitan" weighs less — has greater tensile strength. It has low stretch — extremely high resilience. All these add up to lower maintenance and longer life.

All "Hairitan" products are identified by orange color on the flesh side. Items with hair-off are orange-colored all over. When you see orange color on leather, you can be sure it's the best for textiles, tanned and finished for a single purpose — under a single quality control.

the ORANGE LINE

ONE QUALITY CONTROL FROM HIDE TO LOOM

Graton & Knight PICKMASTER, with the "Life Saver" hole. Made from Hairitan leather. Other products in the ORANGE LINE: check straps, lug straps, flat mill strapping, etc.



QUALITY-CONTROLLED FROM GREEN HIDE TO FINISHED PRODUCT

GRATON & KNIGHT CO.

WORCESTER — GRATON AND KNIGHT — MASSACHUSETTS

Supplied by the leading Distributors to the Textile Industry ... see adjoining column (also listed in THOMAS' REGISTER).

DISTRIBUTORS

of the

"ORANGE LINE"

•

ALABAMA

Birmingham — The Young & Vann Supply Company

Mobile — McGowin-Lyons Hdwe. & Supply Company

•

GEORGIA

Atlanta — Fulton Supply Co.

Columbus — Columbus Iron Works Co.

Rome — Battey Machinery Company

•

LOUISIANA

Monroe — Weaks Supply Company, Ltd.

New Orleans — Standard Supply & Hdwe. Company, Inc.

•

NORTH CAROLINA

Charlotte — The Textile Mill Supply Co.

•

SOUTH CAROLINA

Charleston—The Cameron & Barkley Co.

Greenville — Hugh Black

•

TENNESSEE

Jackson — Southern Supply Company

Knoxville — Tennessee Mill & Mine Supply Company

Memphis — Lewis Supply Company

Nashville — Keith, Simmons Co., Inc.

•

VIRGINIA

Lynchburg — Barker-Jennings Hdwe. Corporation

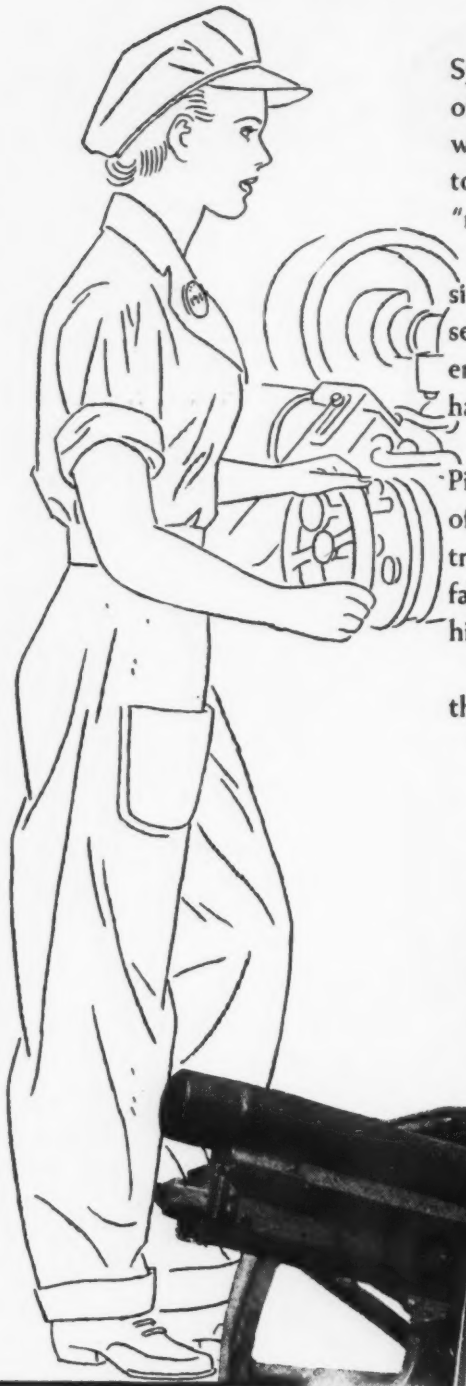
Newport News — Noland Company, Inc.

Norfolk — Taylor-Parker Company, Inc.

Richmond — Industrial Supply Corp.

Roanoke — Noland Company, Inc.

Modern Molly Pitchers



Symbolizing the aroused spirit of a fighting America are those women who have set aside customary feminine pursuits to help "man" our production lines.

In the manufacture of precision roller bearings, women have served for years but in the present emergency, their ranks at Hyatt have been swelled by hundreds.

They are the modern Molly Pitchers carrying on the tradition of that brave Revolutionary matron who, after her husband had fallen, kept blazing away with his cannon.

At Hyatt, however, it's more than an allegory.

Our women war workers have banded together in a Molly Pitcher organization of their own to serve further their Hyatt buddies on the firing line.

In addition to making sure that they get more bearings for planes, tanks, ships and guns, these women knit...write letters...send books and cigarettes...while many also find time to aid in civil defense, U. S. O. and Red Cross.

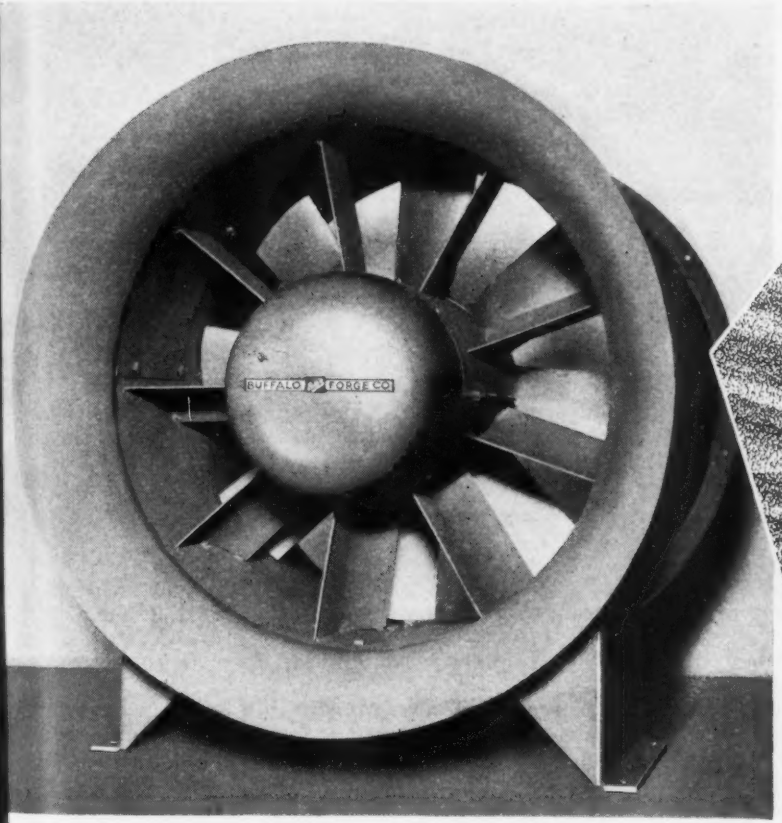
Such spirit, such strength, such sacrifice cannot lose.

Thus, do we pay tribute to our own Molly Pitchers and salute all the other women war workers of America.

Hyatt Bearings Division, General Motors Corporation, Harrison, N.J.

HYATT ROLLER BEARINGS

MOVING MORE AIR per kilowatt hour



"Buf-flow"

AXIAL FLOW FANS

Conserve Power thru Stepped-Up Efficiency

Eliminate wasted energy and you conserve valuable power. **This simple axiom is exemplified in the "Buf-flow" Axial Flow Fan. The air current is propelled in a true axial direction—wasted motion of air turbulence is reduced to a minimum by means of special directional guide vanes, thus preventing energy losses common in ordinary fans. The result is an exceptionally high operating capacity, quieter operation, *more air moved per Kilowatt hour* of input. Add these advantages to the heavy duty construction of the *"Buf-flow"* Axial Flow Fan, with its non-overloading characteristic, and you have the reason for the exceptional performance of this type of fan on so many vital air handling applications.**

ARMY E NAVY

BUFFALO FORGE COMPANY

150 MORTIMER ST. BUFFALO, N. Y.

Branch Engineering Offices in Principal Cities — Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

"Buf-flow" AXIAL FLOW FANS

WE HAVE THIS TO SAY ABOUT PLASTICS

Nothing that an aluminum man can have to say about plastics can add to their virtues or subtract from their very genuine possibilities.

Actually, Alcoa welcomes the strides being made, technically and commercially, by this great and ingenious industry.

This is not mumbo-jumbo. It is a distinctly pious thought.

The more folks who get the big idea that the bright hope of industry, postwar, is to do new things new ways . . . the more designers who really get down to cases, the better for all of us. Imagineering is a nationwide must.

Plastics do many things better than any other material.

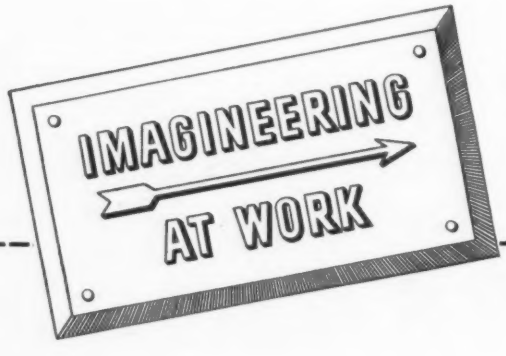
Alcoa Aluminum does many things better than any other material.

The two can team up to do a better job for you in certain situations than either could do alone.

As for Alcoa Aluminum, busy seven days a week on war production, we can only remind you that when our strong alloys are again available, you are going to have to throw your old measuring sticks into the scrap heap. New costs, new strengths, new technology, new finishes.

Of such things will postwar jobs be made. On such things must our "eighth-day" thinking be concentrated.

ALUMINUM COMPANY OF AMERICA. 1942 Gulf Building, Pittsburgh, Pennsylvania.



Alcoa Aluminum

IMPOSSIBLE ?

OF course it's impossible. Nobody but a gremlin could have put the arrow through that block of wood, because the ends are bigger than the hole. But there it is, an accomplished fact—and there's a perfectly simple explanation for it.

A few years ago nobody was ready to believe that loom production could actually be increased by the application of a complete system of slasher control. Yet today the Taylor Slasher Control System is an accomplished fact. In size cooking, for example, you load the kettle and push the button — and the Taylor Fulscope Time Schedule Controller does the whole job automatically!

We're proud of this new Taylor Time Schedule Controller, and of the instrument it grew out of, the Taylor Fulscope Controller with its "not one but five" forms of control available in one case. But we're equally proud of other "impossible" jobs which Taylor "know-how" has been able to work out. Such as Taylor Accuratus Tubing for mercury-actuated thermometers, which gives you accurate reading with long lengths of tubing regardless of ambient temperature variations. Or the Taylor Thermospeed Separable Well Tube Systems. Precision Valve Action which originated in our Dubl-Response Control Unit. Or the Taylor Flex-O-Timer. Or the new Taylor Aneroid (mercuryless) Manometer for flow and liquid level.

If you have a tough problem, we'd like to try to solve it for you in a hurry. As they say in the war plants these days, if it's impossible it may take a little longer. Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada. *Instruments for indicating, recording, and controlling temperature, pressure, humidity, flow, and liquid level.*

Taylor Instruments

MEAN

ACCURACY FIRST

IN HOME AND INDUSTRY

★ KEEP ON BUYING U. S. WAR BONDS AND STAMPS ★

"Gulf Lubrication is Production Insurance—"

says this Superintendent

"By following Gulf Engineering recommendations, we keep output up and delays down"

"Working under heavy pressure 168 hours a week to meet urgent orders, we can't take chances on production jamming up because of time-consuming overhauls and repairs," says this Superintendent. "That is why we pay close attention to our lubrication—and use the quality lubricants prescribed by the Gulf Lubrication Service Engineer. They help us keep all our equipment up to maximum production week in and week out."

This mill, like many others, realizes definite production benefits from the use of Gulf quality oils and greases, applied as recommended by Gulf Lubrication Service Engineers. For these lubricants are scientifically manufactured to withstand even greater punishment than modern high-speed textile machinery in continuous operation can give them. They provide a tough, long-lasting film that is a constant safeguard against excessive wear and resulting mechanical troubles.

Let a Gulf Lubrication Service Engineer demonstrate to you—in your mill—how Gulf quality lubricants provide an extra margin of protection to your equipment—and help you secure uninterrupted production.

Gulf quality lubricants are available to you through 1200 warehouses located in 30 states from Maine to New Mexico. Write or 'phone your nearest Gulf office today.

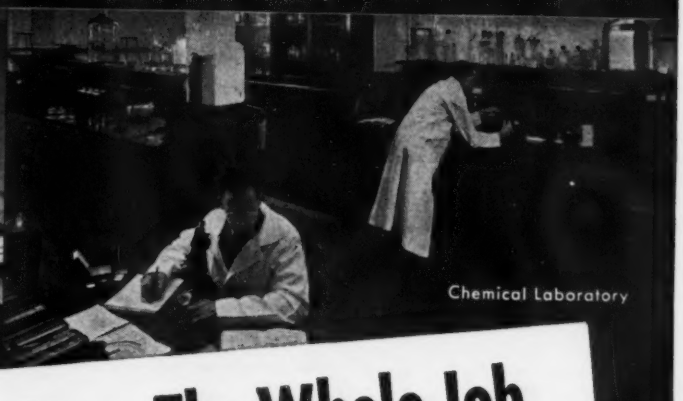
Gulf Oil Corporation · Gulf Refining Company

Gulf Building, Pittsburgh, Pa.

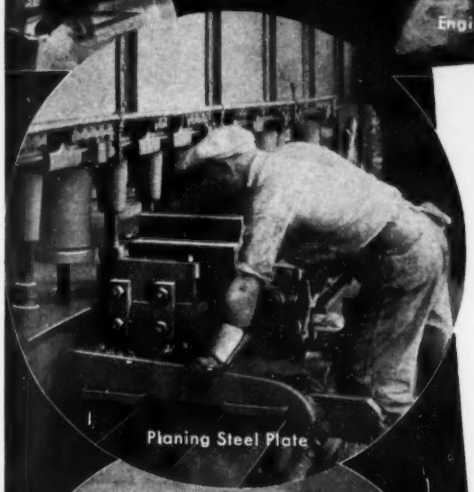
GULF INDUSTRIAL LUBRICATION

From Laboratory to Working Unit...

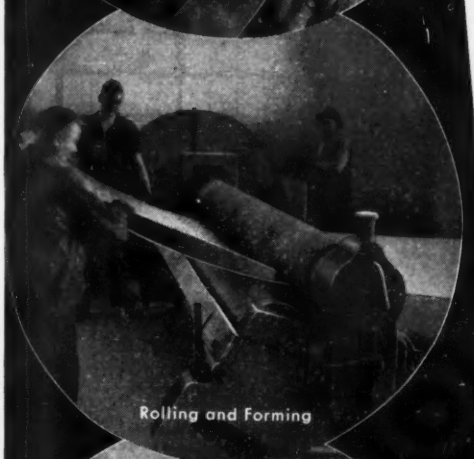
Engineering Department



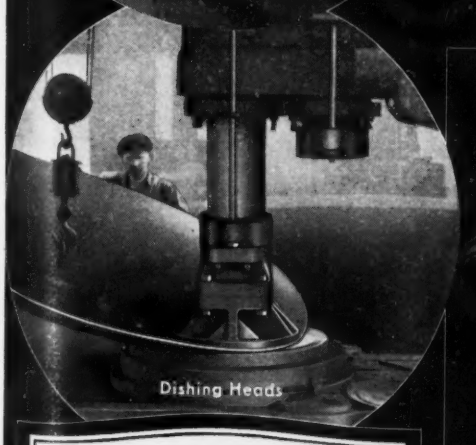
Chemical Laboratory



Planing Steel Plate



Rolling and Forming



Dishing Heads

Graver Does The Whole Job

All Graver Water Conditioning Equipment is completely Graver-built from start to finish. There is no "jobbing out" of work. No sub-contractors enter into the picture. The service is complete and the responsibility is undivided.

- **Your raw water supply is given a thorough study and analysis in Graver laboratories.**
- **The proper equipment to meet your specific requirements is designed by Graver engineers alone or in cooperation with your engineers.**
- **The equipment is built in Graver plants by Graver workmen under the supervision of Graver engineers.**
- **And the installation is made under Graver supervision or by your contractor with such help from Graver engineers as he may desire.**

That's what we mean by complete service and undivided responsibility.

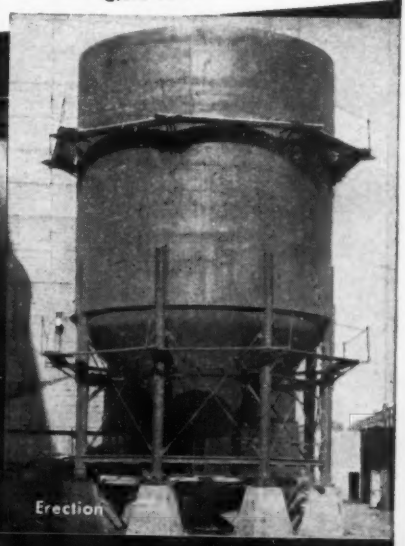
If you are planning to invest in water conditioning equipment of any type, bear these facts in mind — and consult Graver. We'll gladly discuss your problems with you and submit quotations without obligation.

GRAVER TANK & MFG. CO., INC.

4809-67 TOD AVE., EAST CHICAGO, IND.

NEW YORK CATASAUQUA, PA. CHICAGO TULSA

Welding



Erection

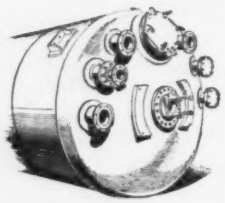
GRAVER

Water Conditioning Equipment

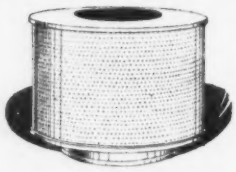
43-29-W

STAINLESS STEELS for the Tough Jobs in Industry

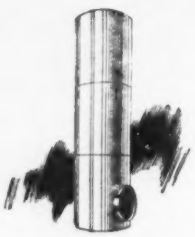
Typical applications of Stainless Steels selected for specified jobs . . . .



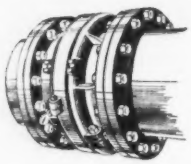
Autoclave used in the plastics and rayon industry is made of chromium-nickel-molybdenum stainless steel to combat the pitting corrosion of organic acids.



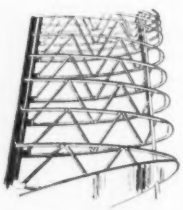
Wringer baskets are made of chromium-nickel steel to resist the corrosive action of mixed sulphuric and nitric acids in the manufacture of explosives.



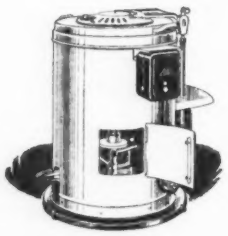
Absorption tower, of high-chromium corrosion-resistant steel, reclaims nitric acid from waste NO_2 gases in the chemical industry.



Oil refinery expansion joints are built of 18-8 chromium-nickel steel to withstand corrosion under high pressures and temperatures.



Aircraft nose ribs of stainless steel will be covered with a skin of stainless steel for a light structure with high strength.



Centrifugal extractor in the pharmaceutical industry is made of 18-8 stainless steel for product purity and equipment durability.

"Electromet" is a registered trade-mark of Electro Metallurgical Company

STAINLESS steels do the tough jobs in industry. Their superior resistance to corrosion and oxidation, and their remarkable strength-weight ratio, make them valuable in many war-production applications.

A steel is classed as stainless when it contains at least 12 per cent chromium. Other alloying elements . . . such as nickel, manganese, columbium, silicon, molybdenum, titanium, and vanadium . . . may be added to vary the properties of the steel. This variation in properties makes it important that you select a steel for the job it has to do. By careful selection of the proper stainless steel for your job you can help conserve stainless steels and the metals used in making them.

• • •

Although we do not make steel, we have for 35 years produced Electromet ferro-alloys and metals used in steel-making. Our metallurgists have made an extensive study of alloy steels, both in the laboratory and in the field. If you have a problem in the selection, fabrication, or use of alloy steels, consult us.

ELECTRO METALLURGICAL COMPANY

Unit of Union Carbide and Carbon Corporation

30 East 42nd Street UCC New York, N. Y.

In Canada: Electro Metallurgical Company of Canada, Limited, Welland, Ontario.

Electromet
Trade-Mark
Ferro-Alloys & Metals

Young by the count of his years, but matured by the weight of the fears he has choked in the vise of his valor, this boy—a little homesick perhaps in his lonely vigil—is the symbol of the millions who will see their first star-shell.

What is he thinking about, out there in the sullen stillness of his post? Whatever it is, you may be sure it has something to do with the life, the people, the plans he left back here. They are a mental magnet to his thoughts—revised occasionally as he ponders what he will come back to.

If the pace of production has been maintained, if enough bonds have been bought, if more than words has been devoted to post-war plans, he will come back to feel his contribution has been worthwhile.

It is up to us, here and now, to discharge our obligation to him by producing more, by investing in bonds, by planning for the pent-up, unrationed needs of that day.

If new special-purpose machines are part of your post-war plans, you will want to send for a copy of "Facilities."

Builders of Textile Machinery, including Circular Knitting Machines, Skein Reelers, Backwinders, Fidelity-Rolandé Course Counters and Universal Ribbers

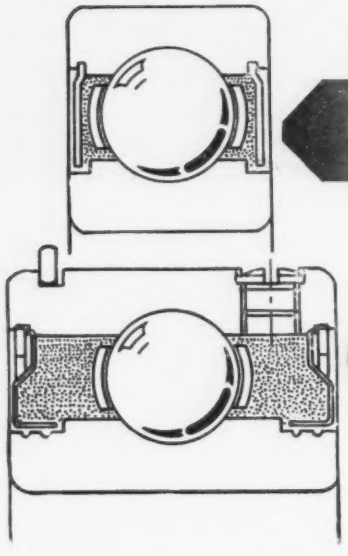
ARMY E NAVY

32 YEARS' EXPERIENCE

FIDELITY MACHINE COMPANY

3908-18 FRANKFORD AVENUE, PHILADELPHIA, PA.

YOU CAN'T GET A QUART INTO A PINT MEASURE



And, "by the same token," you can't get as much grease into a single-row-width "sealed" ball bearing, as goes into the double-row-width "CARTRIDGE" BALL BEARING of equal bore and outside diameter. Look at the section drawings herewith, and you'll see why.

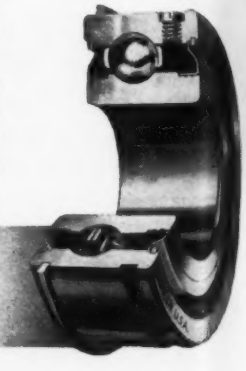
In the single-row-width shielded or "sealed" bearing, see that very small grease space inside the sealing plates. Note further that there is no space available for a highly-efficient, truly grease-tight seal.

Now, in contrast, see that big grease reservoir between the seals, in the "CARTRIDGE" BEARING section—providing at least DOUBLE THE GREASE CAPACITY of the shielded or "sealed" bearing, and greatly extending the greasing intervals. Note, too, how the wide, inwardly-extending seal flanges, and the oil grooves on the inner ring, provide AN IDEAL SEAL THAT PREVENTS THE ESCAPE OF GREASE AND EXCLUDES DIRT, whatever the shaft angle.

Furthermore, the "CARTRIDGE" SEALS ARE REMOVABLE AND REPLACEABLE, should you wish to inspect the bearing or change the grease. And the refilling plug makes it easy to put in a new charge of grease. You can't do this, with the ordinary shielded or "sealed" bearing, which is permanently sealed.

QUALITY, too, is just as vital as QUANTITY, in the grease in your bearings. So, every "CARTRIDGE" BEARING leaves our factory, packed with NORMA-HOFFMANN "STABILITY-TESTED" GREASE, which has great resistance to oxidation as well as excellent lubricating properties.

Summing up . . . all these distinctive features of the NORMA-HOFFMANN "CARTRIDGE" BALL BEARING mean prolonged bearing life, less lubrication attention and lower maintenance cost. Write for the Catalog, enumerating many additional advantages. Let our engineers work with you.

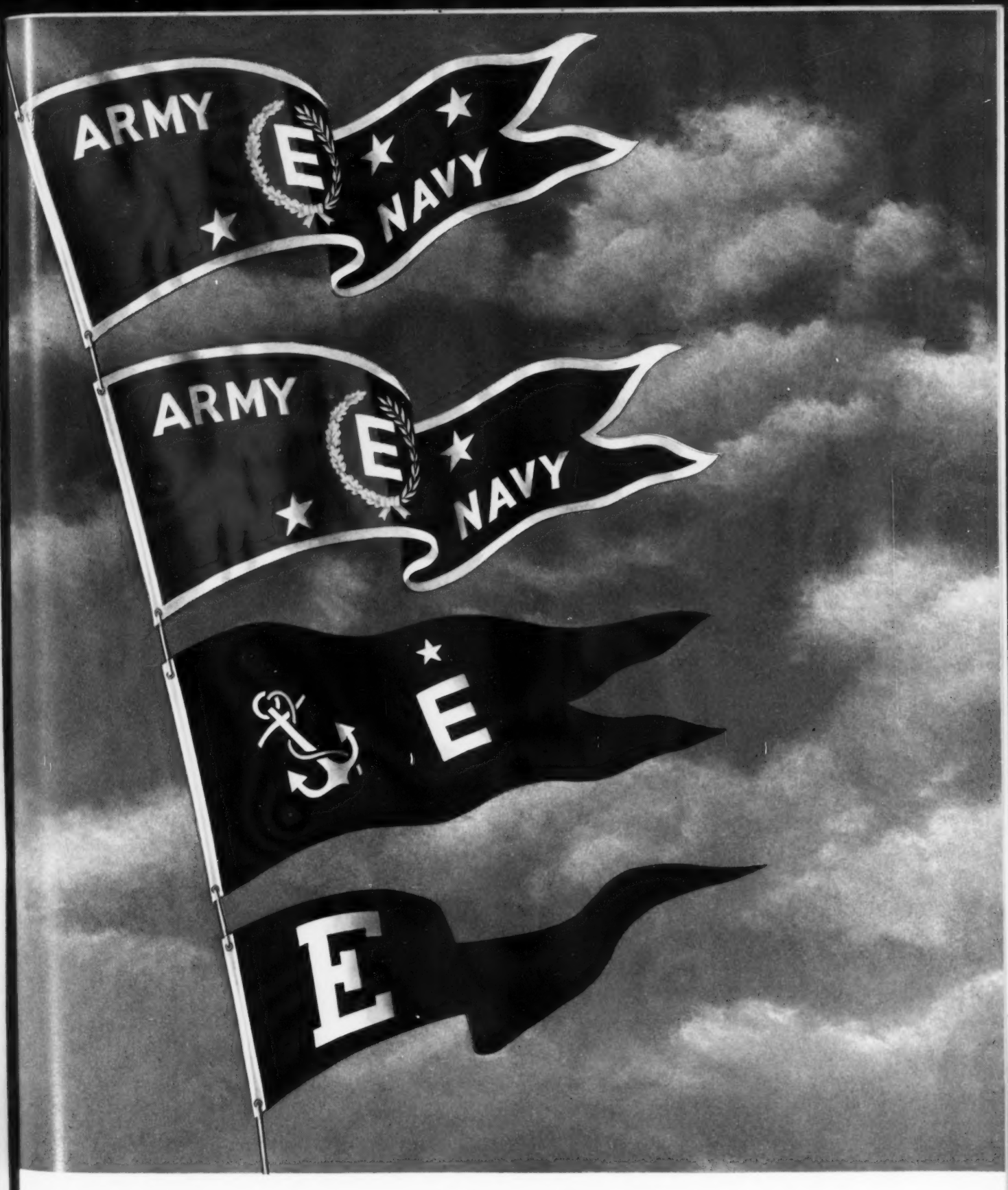


NORMA-HOFFMANN

"CARTRIDGE"
BALL BEARING

NORMA-HOFFMANN BEARINGS CORP'N, STAMFORD, CONN. • FOUNDED 1911

TO WIN THE WAR: *Work—Fight—Buy War Savings Bonds!*



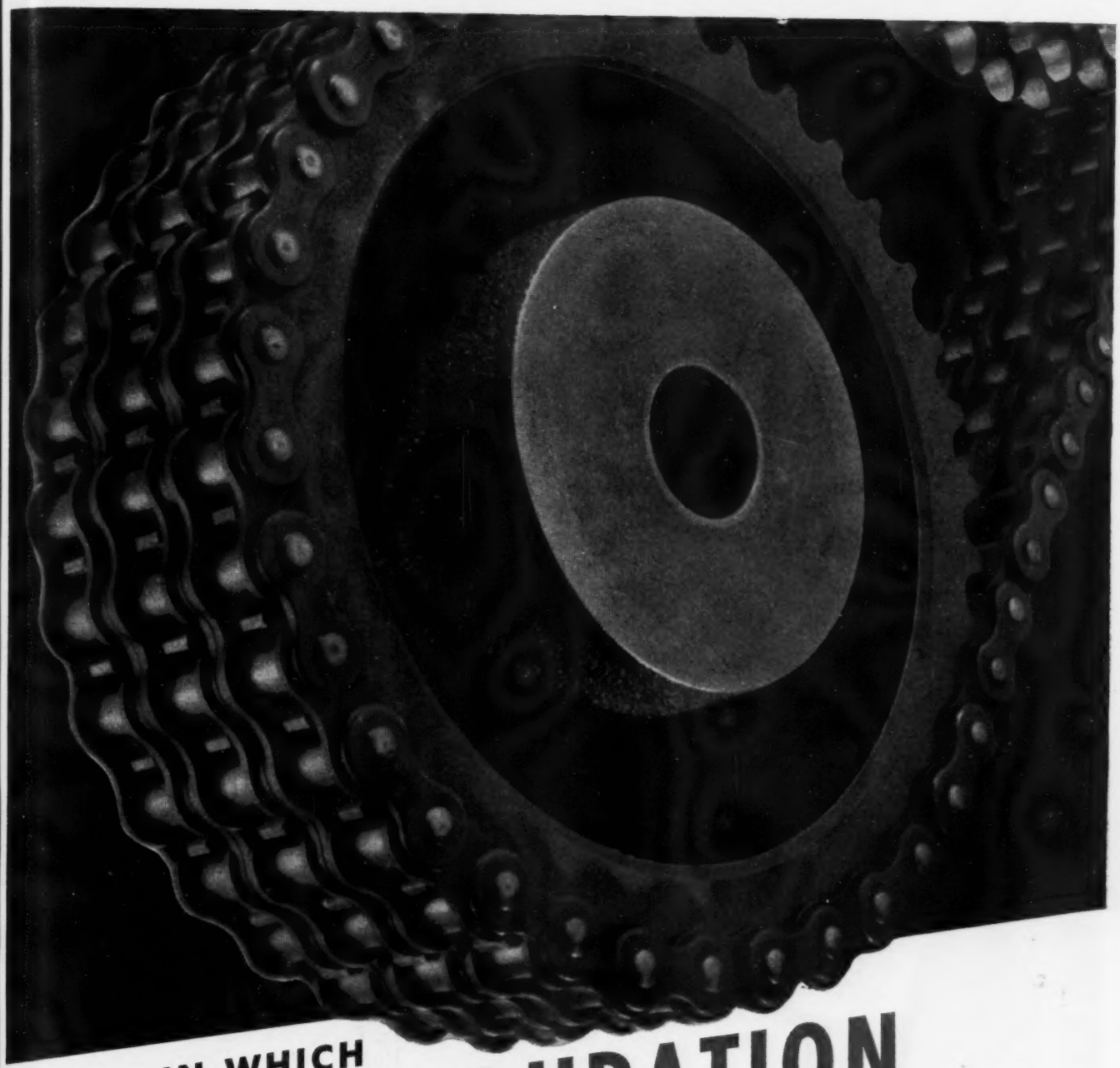
An obligation of honor."
PREMIER ASQUITH

Until the Victory is Won! . . . The men and experience back of Reading Full-Fashioned Knitting Machines are enlisted for the duration. We *cannot* give you new machines—but we *will* do the next best thing: Our engineers will do their utmost to help you keep your present equipment at highest efficiency. *Let us tell you about our complete reconditioning service and what it means in terms of better fabrics and bigger profits.*

TEXTILE MACHINE WORKS • READING, PA.

For a lovely farmerette . . . Every woman anticipates the thrill of clear, even-textured stockings in her well-earned leisure hours. Every hosiery manufacturer knows that no machine can knit a better fabric than the needles can produce. Keep your knitting machines young and effective with TMW Needles . . . *and remember: Regular Reneedling Pays! Let us put your needle bars in shape for faster, more accurate, more profitable knitting.*

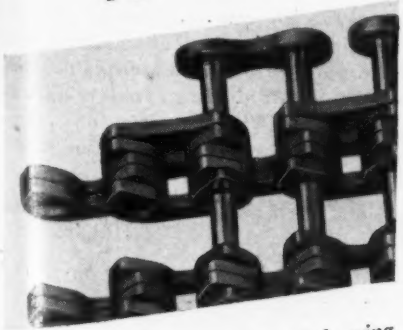
TEXTILE MACHINE WORKS • READING, PA.



2 WAYS IN WHICH MORE DURATION IS BUILT INTO WHITNEY SILENT CHAINS

Whitney Silent Chains are the only power-drives that offer the rugged pin-and-bushing feature of roller chain construction with the wear-resistance of the double-bearing principle, which distributes the load on both inside and outside of the chain bushing.

Now add the operating quiet and smoothness of the inverted-tooth link . . . and the extra toughness and strength of Whitney alloy-armored steels . . . and you can see why Whitney Silent Chains have so long been the standard drives built into 20 leading makes of textile machinery . . . including spinning frames, slashers, cards, hosiery machines, agers, dryers, and other equipment. And for these same reasons, it will pay you to specify Whitney Silent Chain Drives for every textile machine you build or operate.



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June, 1943 • VOLUME 93 • NUMBER 6

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TEXTILE WORLD (formerly *Textile World Journal*) with which are combined *Textiles, Posselt's Textile Journal* and *Textile Advance News*. Published monthly. United States and Possessions and Latin American Republics, $1.50 a year; Canada and all other countries, $2, U. S. currency or 12 shillings. Single copy 25c. Annual index in "Textile World Yearbook & Catalog."

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IN THE NEXT

TRAINING OF EMPLOYEES will be featured in the July issue in a group of articles. Best practice in training is more important than ever in the current manpower shortage. These articles will aid in avoiding lost motion and perhaps in reducing labor turnover. The relation of a training program to general personnel policies will be explained.

Another outstanding feature of the July issue is a Loomfixers' Reference Chart which enables one to determine and remedy quickly the causes of various fabric defects due to faulty adjustment of looms. Among other technical articles tentatively scheduled for July is one on Cotton Variety and Spinning Performance, one on Preventing Silverfish Damage to Rayon, and one on Vibration Insulation of Machines. Light will be thrown on the latest Washington developments.

There will be further interesting discussions of mill questions in the "Mill Men's Round-Table" and helpful hints on quicker and better ways to do the job in "Kinks & Short Cuts."

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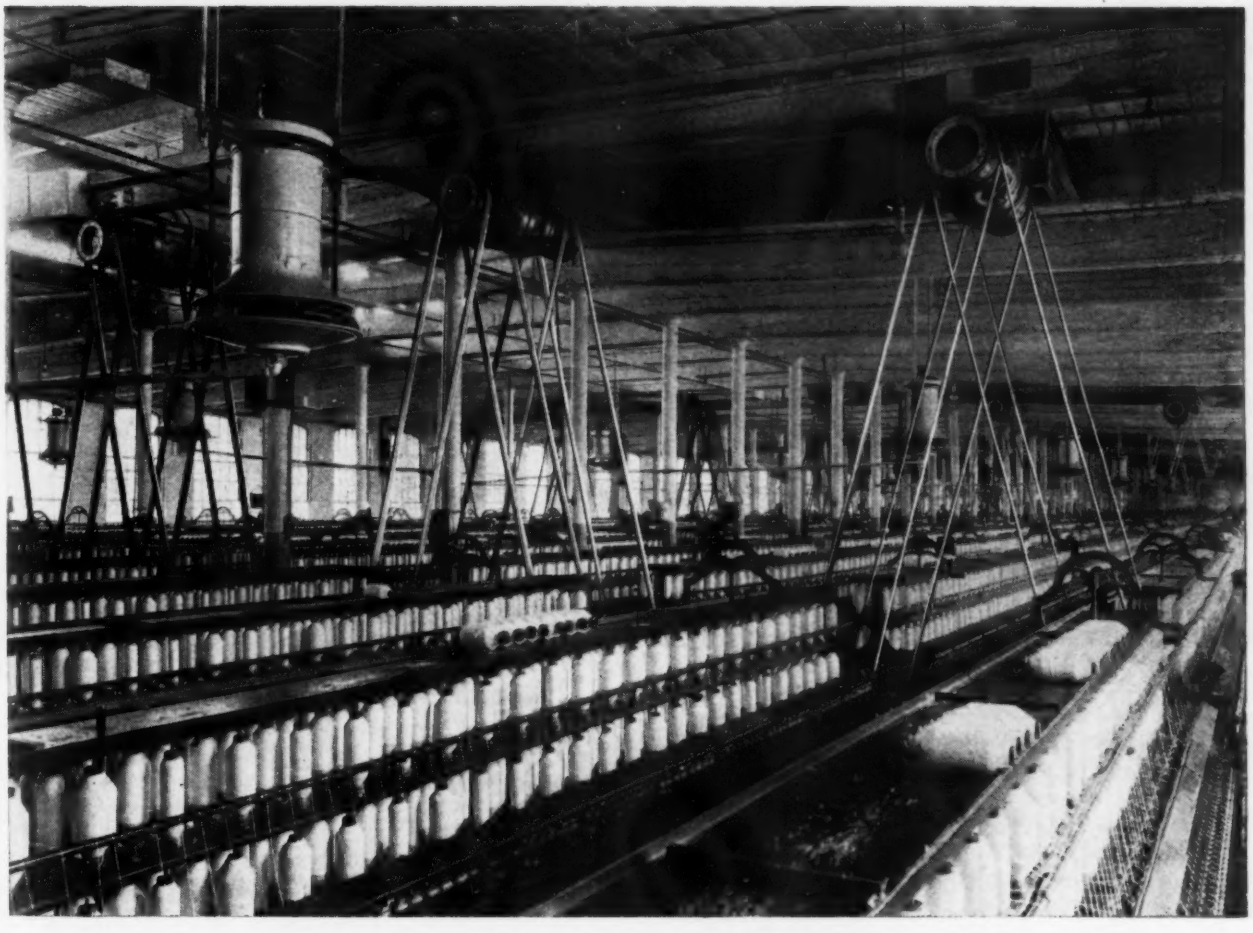

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FOR THE TEXTILE INDUSTRY

TUNE IN FRED ALLEN EVERY SUNDAY NIGHT—CBS ★ HELP WIN THE WAR BY RETURNING EMPTY DRUMS PROMPTLY

Electrical Equipment—Weapons and Tools

From miniature motors to mammoth generators, from tiny detector tubes to great broadcasting stations—everything electrical is essential to our war effort

AS this editorial goes to press, newspapers and radio news commentators are telling the dramatic story of the blasting of two mighty Nazi power dams. Floods are sweeping down the Ruhr Valley, Germany's most vital munition production center. Two vast networks of industrial activity lie inert, for the great generators that had fed power to hundreds of plants producing war goods for Hitler, today stand idle. This daring raid will go down in history as one of the most, if not *the* most devastating of the entire war. It has destroyed two great sources of power, stopping the wheels in hundreds of plants and throwing into darkness thousands of factories and homes.

This epoch-making raid by the R.A.F. brings home to us the vital importance of our own power resources, those colossal generators from which flows the current that turns the wheels of our great industries, illuminates our factories and homes and runs our electric railways and subways. It makes us realize how dependent we are on electricity and how important is the part of those manufacturers who produce the electrical equipment that makes possible its generation and use.

Beginning with Thomas A. Edison, the inventive genius of electrical manufacturing men has devised more and more efficient ways of generating the current, better and better means of transmitting it and of applying it to do thousands of jobs quicker and better.

The products of electrical manufacturers have become so completely an essential component part of every industrial, business and domestic activity that our economy and our war effort could not go on without it.

In days of peace the laboratories of our electrical industry gave us radio, fluorescent lighting, infra-red drying, precision process-control, telemetering, split-second circuit breakers and many other things that border on the miraculous.

Today their facilities and their genius are devoted to an all-out war of wits with Axis scientists and production men.

Electricity plays a significant part in this war . . . from the "walkie-talkie" that brings support to hard-pressed outposts, to the mammoth motors on the battleships. While many electrical developments today are cloaked in secrecy, the nation will enthusiastically applaud these electrical manufacturers when the curtain is lifted.

The far-reaching importance of electrical instruments, apparatus and machines becomes evident when we consider that over 350 different electrical items go into combat vessels and that more than 170 go into a fighter plane. Most of these products are distinctly special in nature and are far removed from their civilian counterparts if, indeed, they have such counterparts.

To the civilian, a light bulb is something so standardized that every need can be filled by any nearby dealer. Our armed forces, by contrast, must have at their disposal more than 400 distinct types of lamps. Some no larger than the head of a match, are so brilliant that they flash signals under a tropical noon sky. Others are built to withstand extremely low temperatures, vibration, shock and many other abuses to which they are subjected.

On planes, for example, numerous fractional-horsepower motors are used but the standard industrial motor is not suitable for this service. New records in low weight-per-horsepower had to be achieved involving extensive changes in design and production.

To prevent the light from instrument panels from impairing the vision of night fighters, ultra-violet radiation which activates fluorescent instrument dials was developed. As a result, the pilot may look out into the darkness after reading his instruments without the least effect on his eyes. How many precious air victories can be credited to this one development alone?

But, in general, the story of this industry's war work is much too blurred by military censorship to afford an adequate picture of its contributions. The factories and shipyards that are turning out war matériel tell a more complete story. Many of these have been built during the past two years. Others have gone through a complete conversion process. In every case, large quantities of electrical materials were involved.

In the broadest sense, there are three major jobs which this industry has had to do, in addition to equipping our modern war machine. It has had to supply materials for the vast expansion of our industrial system, keep every plant fully maintained, and provide the necessary equipment for the vital power and communication fields.

More than $1,900,000,000 was spent for new industrial construction in 1942, and of this about 7% or $140,000,000 was for electrical materials. New machine tools and other production equipment required an additional $350,000,000 worth of electrical products. The conversion program called for another $145,000,000 of electrical apparatus and supplies.

This total of over $600,000,000 in itself would have staggered the electrical industry in a peace-time year. Yet, this record-breaking production was essential and had to be superimposed upon the direct requirements of the Army and Navy.

Industry depends upon electricity. Consider for a moment the effect of modern lighting upon war production. Industry enjoys levels of illumination and color quality that were undreamed of ten years ago. As a result, midnight shifts operate at daytime efficiency. As a matter of fact, many of the more modern plants have no windows at all.

Then there is maintenance. The failure of one single motor or feeder will stop a production line. Electrical manufacturers have had to stand at all times ready to

supply the heavy demand for the maintenance and repair parts that keep our industrial machine operating at top speed. Excess loads, 24-hour schedules and inexperienced production hands combine to shorten the lives of electrical equipment.

Electrical manufacturers have had to supply the greatly expanded needs of our power and communication systems.

New construction of all sorts — war plants, cantonments, war housing — has created a formidable need for additional capacity. Every element in our domestic economy has called for increased communication and power services. All this had to be superimposed upon the vast demands of our armed forces. The magnitude of this task is obvious but it is being successfully accomplished. Every old installation is functioning smoothly and every new one has been ready to function on exact schedule. There has been no failure either in our power or in our communication. Part of the credit for this performance belongs to the hundreds of manufacturers who delivered their products when and where they were needed.

This was not merely a problem of increasing production. These manufacturers had been depending on rubber, copper, aluminum and steel — all highly critical materials. For much of their non-military production they suddenly had either to find substitutes or practice the utmost economy and ingenuity.

Solutions to many problems were quickly found. Lighting manufacturers greatly reduced their use of steel by designing efficient, non-metallic reflectors. Wire and cable manufacturers expanded their use of synthetic insulation in place of rubber and they promoted the use of higher distribution voltages so that every ounce of copper would work more efficiently.

Steel is essential in apparatus that operates magnetically. There is no known substitute. But marked economies in its use have been achieved through the development of new alloys that are of increased magnetic efficiency. As a result, motors and transformers now consume substantially less steel than did units of equal capacity a year or two ago.

Electrical manufacturers have given our industries numerous new production tools. Infra-red heating tunnels, for example, have drastically reduced the time involved in production drying . . . in some cases from hours to minutes. High-frequency induction-heating has been spectacularly successful in the forging, brazing, hardening and casting of ordnance. Modern welding equipment makes possible speedy production with inexperienced labor.

America's production lines are being patrolled by electrical devices which eliminate human error. One million volt X-ray equipment looks through castings and points an unfailing finger at defects. An electronic flaw detector tests nonferrous drawn-metal tubing for imperfections. Other electronic devices are counting and sorting the products of thousands of war plants. Precision controls regulate all sorts of processes, from aluminum production to armor plate annealing.

These are but a few of many examples of the way in which the magic power of electricity has been harnessed to the war effort. Back of every development there is at least one electrical manufacturer — more often many — who have pooled ideas and methods with no thought of royalties or dispute over cost allocation.

No story of the electrical industry would be complete that did not pay tribute to those manufacturers who have dropped their normal lines in order to produce special war products. Many appliance manufacturers fall in this group. When war came, they did not stop to argue that civilian morale and big pay checks would demand a continued supply of their products, instead they quickly shifted to the production of war matériel and today they are deep in the manufacture of machine gun parts, aircraft sub-assemblies, and even gas-mask fabric. They have had to abandon their hard-won markets for the duration; but they are contributing mightily to permanent peace and a more prosperous world to which they will return when the guns are silenced.

This great industry has increased its production threefold in two years — $2,500,000,000 in 1940 to $7,500,000,000 in 1942. It has done this with all the zest of youth, for this is a young and a pioneering industry. Few companies in this industry are fifty years old; the majority are much younger. Top management in general is young, too, and many outstanding technical developments have come from the brains of men just a few years out of college.

The results of all its intensive intelligent work can be found in every factory, on every battlefield and ocean, and even in the flak-spotted air over Berlin. In a sense, the electrical manufacturing industry stands beside every soldier and every sailor as he goes into action. It has a place of honor it richly deserves.

And when this war passes into history, as it surely will, our soldiers and sailors returning to peace-time jobs, will find a life greatly enriched by electrical developments that were undreamed of yesterday.

President, McGraw-Hill Publishing Company, Inc.

This is the twelfth of a series of editorials appearing monthly in all McGraw-Hill publications, reaching more than one and one-half million readers, and in daily newspapers in New York, Chicago and Washington, D. C. They are dedicated to the purpose of telling the part that each industry is playing in the war effort and of informing the public on the magnificent war-production accomplishments of America's industries.

Textile World

DOUGLAS G. WOOLF, EDITOR

"What Do I Do Next?"

THE ABOVE QUESTION must be in every textile manufacturer's mind at this moment. He is faced with (1) the need for continued all-out production for war purposes, Lend-Lease, and essential civilian supply; (2) the possibility of an earlier end of the war than anyone has dared to hope up to this moment; and (3) the tremendous problem of post-war readjustment, reconversion, and re-employment.

There is no problem attached to the first of these three phases. Every textile manufacturer will continue to give his first thought to all-out war production, as long as there is a single American soldier in contact with the enemy, or preparing for such contact.

But the second and third phases—the possibility of an early end of the war, and the difficulties of post-war readjustment—*do* present a problem of first magnitude, and of great complexity.

This is where the question "What Do I Do Next?" comes in.

AND HERE ARE A FEW ANSWERS to that question:

1. **Personnel:** Examine your manpower set-up; figure out the number of men and women who will come back from service of various kinds to knock at *your* door for re-employment; prepare for their absorption with at the same time the minimum possible dislocation of the older groups and others who have stepped into the breach. Above all, plan now for a personnel policy, program, and department which will continue to isolate the human being as the keystone in peace, just as he has proved to be in war.

2. **Product:** Examine the prospects, post-war, for the products you made pre-war, for those you are making under war-time necessity, and for those you might be able to convert to, after the emergency. Forget status quo. Shed your mind of any pride in a product which you or your company may have made in the past. Think objectively of what product you can make at a profit in the post-war era.

3. **Equipment:** Utilize the combined facilities of your own engineering department, of established engineering companies, and of machinery manufacturers, to examine every bit of equipment in your plant: its usefulness, its ability to compete with that in other plants, its location and arrangement. Here, too, forget status quo. Don't be wedded to *any* type of equipment except that which will produce at a profit. Product and equipment examination must be integrated if real results are to be achieved.

4. **Finances:** This is the most difficult problem of all, because of the variables involved in pending and future tax legislation. But at any rate, you can examine your financial structure and determine, within reasonable limits, whether you should reduce or expand your present scale of operation for post-war solvency. Many firms in existence at the end of World War I would have been better off if they had closed up shop at the first sign of contraction. But there is this to be said: No company that has the ability to keep alive and alert to changing conditions need wind up now.

5. **Research:** Keep in touch with, and in support of, the research movements in the industry. Develop your own research department, and tie it in with these broader agencies, so that you may take advantage of every new scientific, economic, and merchandising development.

IN OTHER WORDS, forget that you have a company with particular types of equipment, accustomed to process certain fibers and to turn out certain products. Just remember that you have a company, period.

And regard that company merely as a medium by which you may make profits for yourself and your stockholders, with the inevitable wage-returns to your employees which profitable operation entails.

Enter the post-war era with the same open mind with which all countries, all industries, all individuals have to face it. There are no yardsticks for the future. There is no sure equipment, other than a flexible mind and a courageous heart. But that combination can yield returns in material and spiritual values sufficient to satisfy the most avaricious, and the most idealistic, members of human society.

What do I do next? Get ready for *anything*. Be prepared for the worst. But *make* the best happen to you and your company and your employees.

Douglas G. Woolf

THE EDITOR SAYS

"Textiles Go to War"

Without reservation, we proclaim the "Textiles Go to War" program at Spartanburg, S. C., May 30-31, the best single job of public relations that has been done to date for the textile industry.

The inspiration which led to its inception—that of dramatizing the part the textile industry is playing in this war—was superb. The execution of the program itself was perfect.

Millions of radio listeners all over the country heard Justice Byrnes, the boss-man of the whole war economy set-up, and Vox Pop—all with the realization that this was the textile industry speaking.

Those of us who have spent our lives in and with the textile industry got a tremendous kick and lift from hearing a guy named Guy tell of his myriad relations active in the industry and in the war: from hearing a textile widow tell of her son now missing; from hearing familiar textile-mill terms batted around the ether; from hearing Startex and Pacolet and Mills Mill, and so many other textile mills mentioned.

This is bringing the textile industry close to the American people—and in a big way.

Many men and organizations contributed to this accomplishment. To them, TEXTILE WORLD tenders its appreciation of a rare job, rarely done.

A Postponed Anniversary

TEXTILE WORLD marks this year its 75th anniversary. We had planned to make this June issue our 75th Anniversary Number—and our good friends among the textile equipment and supply firms, as well as in the mills, had shown a disposition to help us mark the event in a big way.

But it is one of the many casualties of the war. The paper shortage seems to render a special issue of this type inappropriate, if not impossible.

So we shall postpone it until after the emergency. When we pick up the plan again, it will be for the same purpose that led to the original concept: tracing the progress of the textile industry during the last 75 years, and charting its course for the next 75 years.

To our many friends who had shown a desire to participate in this issue, we tender our thanks—and a raincheck for the postponed event.

Help Save Paper!

Paperwork has been the butt of so many jokes, particularly in recent years, that its importance in industrial operation is apt to be overlooked. Similarly, a threatened shortage of paper, such as now confronts us, is not apt to be given its due importance.

Actually, an absolute lack of paper could all but stop a plant cold. Without letterheads, you can't write for quotations. Without purchase forms, you can't place orders. Without time cards, payrolls, employment records, continuous forms, memoranda, blueprints, etc., it would be almost impossible to keep a plant or office running.

Yet in the case of commercial paper alone, 1943 demand will outweigh the prospective supply by nearly 40%. Worse still, rising Governmental requirements will leave for industry in 1943 an amount equal to only about 50% of its 1942 consumption.

Were it not for the fact that great savings have been made by industry, by newspapers and magazines, by the Government, and by WPB's curtailment of less essential paper products, many believe we would now be gripped by an unprecedented and crucial shortage. And offsetting the greatest savings are war's tremendous new demands. Vast quantities of paper are being shipped overseas, never to return to the domestic waste market.

All industry can help in meeting this crisis. Here are five guiding questions which every management should ask about every piece of written or printed matter which it orders and uses:

1. Is it necessary?
2. Can lighter paper be used?
3. Can a smaller size be used?
4. Can the number of printed pieces be reduced by pruning distribution lists?
5. Is an excessive inventory of paper on hand? (Sixty days is today's allowable margin—six months the peacetime average.)

WPB officials urge every top management to make a competent operating executive responsible for the application of these principles in each plant. And here is a brief check-list for the further guidance of the paper-saver:

1. Use 8½x5½-in. letterheads for short letters; inclose them in small envelopes.
2. Review all printed forms periodically for essentiality; consolidation; elimination of waste space; standardization of sizes, weights, color, grade; elimination of color where possible.
3. Use smaller type sizes and margins. (Any competent printer can point the way to pronounced savings.)
4. Cut the weight of paper stocks.
5. Condense letters and memoranda by (a) keeping margins as narrow as possible; (b) sticking to single-space forms; (c) using reverse side of incoming letters as first carbon copy of replies; (d) using reverse side of second sheets for carbon copies; (3) using both sides of all mimeographed sheets.
6. Control disbursement of paper supplies to employees so that excessive quantities do not accumulate in desks and departmental supply closets.
7. Make scratch pads from stocks of obsolete letterheads, memorandum forms, and other unused inventory.
8. Use and re-use carbon paper consistently.

Exit: The Three Horsemen

The resignation of J. K. Galbraith removes from OPA one more of a little group of serious thinkers who dominated the policies of that outfit. Hamm, Galbraith, Ginsburg—these were the three men we first met in OPA in an off-the-record conference.

They were the men who ruined the chance of a constructive anti-inflation job. They were the men who declared, then off the record, that if you kept prices down, you wouldn't get demands for wage increases. They were the men who shied away from control of prices for farm products.

Leon Henderson, the tough guy with the big cigar, wasn't tough enough to pin back the Three Horsemen's ears.

Brown—a weaker man than Henderson—inherited this mess. So that is what all the shootin' is for nowadays.

Unmourned, the trio passes out. In their place let us hope we get a *real* OPA.

Consider the DRAFTING OPERATION

If you are seeking ways to produce better yarns to meet post-war needs

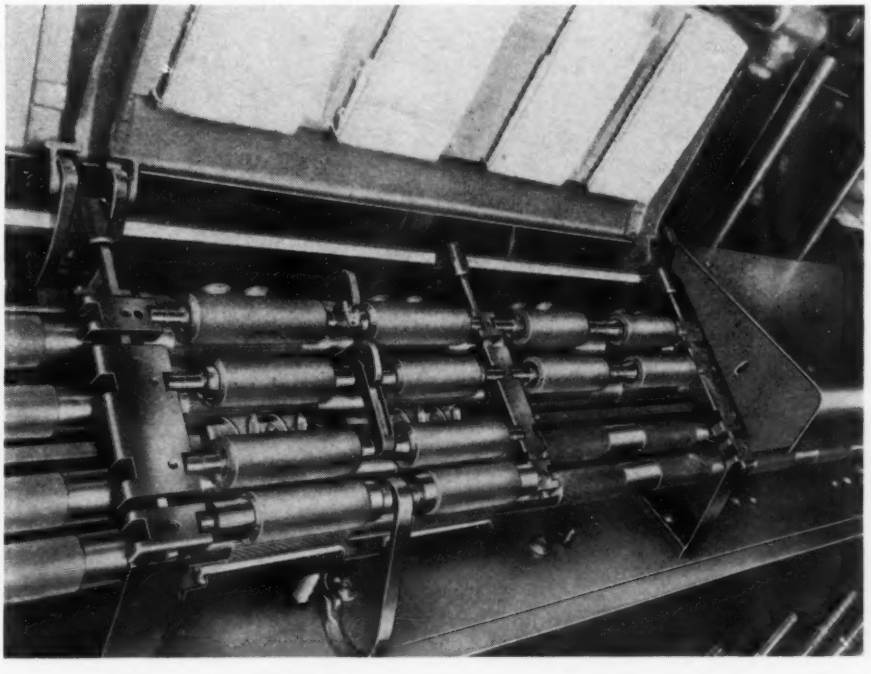
In the 200 years since the method of drafting by use of draw rolls was first discovered, drafting mechanisms have been brought to a high state of mechanical development. Introduction of long-draft equipment has permitted the elimination of one to two processes of drawing and one to three processes of roving, with consequent reductions in yarn manufacturing costs. Now there is a growing emphasis on improvement of drafting techniques for the purpose of obtaining yarns of better quality. In the following article, the author points out the lines along which further study, experiments, and research are needed. Although the article is written from the viewpoint of the cotton yarn manufacturer, it is of almost equal interest and importance to producers of other types of yarn. Front-cover illustration shows primitive method of drafting by hand.

By ROBERT WENTWORTH

THE TIME HAS COME for the cotton spinning branch of the industry to investigate from a fresh viewpoint the processes used in yarn manufacture. No longer is it enough to study these processes merely with the objective of increasing yield of spinnable fiber or obtaining higher rates of production. The major objective now should be to improve the appearance, strength, durability, and other qualities of the yarn. It is no untried theory that study and research along these lines can prove of fundamental importance. Development only a few years ago of heat-resistant cotton cord and perfection of economical processes for its manufacture is one example of what can be accomplished when research is directed toward betterment of yarn properties. Nowhere is there more need for real improvement than in the techniques and processes for drafting. Accordingly, a thorough study of drafting might well be the starting point for the cotton spinning industry in its efforts to produce the better yarns which will be demanded in the post-war era. As a prelude to such a study, let us consider in some detail present practices in drafting and the directions in which improvements can be made.

Experiments have shown that there may be variations as high as 300% in the final yarn produced from card sliver having a variation of not more than 12 to 13% at the start of its passage through the mill. That is, the variation at each process becomes cumulative. Doublings reduce the variation for long units of measurement; but when the variation is measured in short lengths—for example, 2 to 3 in.—the increase in variation is startling. The existence of these short-length variations has been proved, but the reason for them is still without a satisfactory explanation.

This short-length variation has long been known to designers and builders of cotton spinning equipment; and, as a consequence, there has been a continual flow of new ideas and new draft-



Modern drafting-rolls assembly showing fluted steel bottom rolls, covered top rolls, roll stands, and weighting system.

Consider the DRAFTING OPERATION

ing assemblies, the purpose of which has been, on the surface, to improve this condition. As a matter of fact, most of these new devices have had as their main objective the reduction of cost through the elimination of processes by the increase of draft. Some of these new drafting assemblies were able concurrently to effect an improvement in evenness.

There are definite indications that after the war cotton yarn manufacturers will become more quality conscious than ever before. As a result, they will give greater consideration to improvements designed primarily to produce better yarn, with reduction in costs only a secondary contribution.

At present in mills on low, medium, and semi-fine counts, only three draftings are required to convert card sliver to yarn. These occur at the drawing, at the roving, and in the spinning frame.

The conventional system, in common use before the advent of long draft, employed from two to three stages of drawing and from two to three stages of roving. With the multi-stage processes, there were generally from 144 to 288 doublings of the stock when making medium counts, in contrast to the 72 to 144 doublings which are possible when using the long-draft systems.

Special devices, used principally in roving and spinning, have made it possible to extend the draft from a normal of 6 in the conventional roving frame, and 8 to 10 in the spinning, to as much as 33 in long-draft roving and 15 to 20 in long-draft spinning. Incidentally, there are now in development systems for spinning which may raise the draft, without loss of any desirable yarn quality, to as much as 50 in spinning.

The reductions in doublings, to the amazement of many technicians, was not accompanied by any resulting loss of strength, of evenness, nor of appearance. The reason for the maintenance of quality is the result of the better understanding of the drafting operation, of the composition of the stock, and the resulting improvement in the control of the fiber during the critical stages of drafting.

This effective fiber control is possible only when full attention is given to the predrafting processes, as well as to the units where drafting takes place.

Predrawing Processes

TECHNICIANS NOW REALIZE that no matter how well the drafting elements have been designed and built, the results will be below the best possible standard unless the stock is properly prepared. This preparation must naturally begin with the selection of the cotton. When the stock consists of a single variety, grade, and staple, it is possible, by laying down a large number of bales and feeding equal portions from each bale, to get samples from the finisher lap which are comparable. If, on the other hand, cottons of vastly different characteristics are mixed, the action of otherwise efficient drafting elements is definitely sub-standard, as far as performance is concerned.

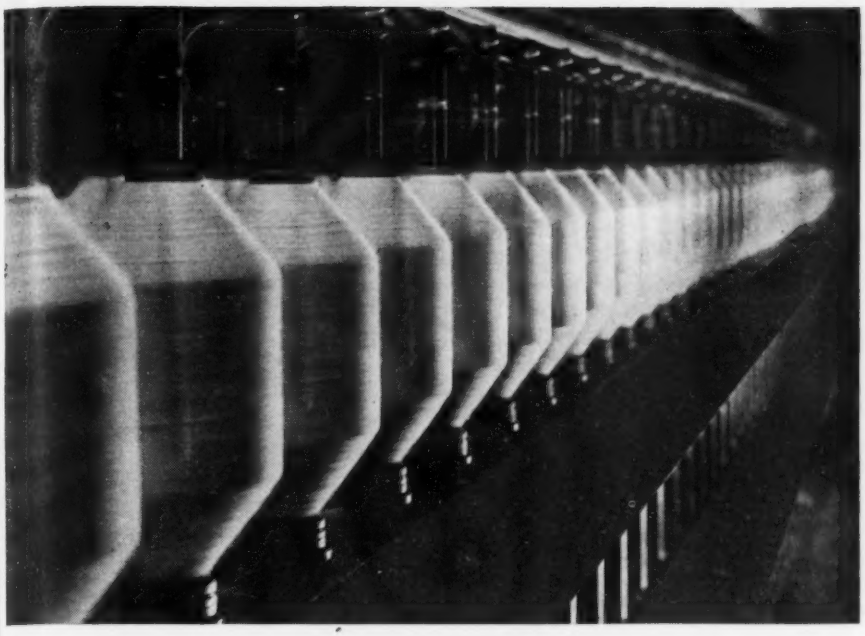
The first precept to be followed if one is to obtain efficient drafting is, therefore, to blend only cottons with similar characteristics. Thin-walled, silky cottons must not be mixed with thick-walled, tough, hard fibers; the difference in spirality will certainly affect the drafting; and, unless the blend is unusually thorough, like fibers will segregate as the stock progresses through the mill.

Furthermore, since cotton fibers with different characteristics react differently to the application of twist, uniformity of strength will be lacking in the final yarn. Cottons which have the higher degree of uniformity in fiber length, wall thickness, and spirality will (other conditions being equal) always produce stronger, more even, and more compact yarns. This is due to the fact that the fibers will interlock more efficiently, increasing the slipping among the fibers, so that a greater number will resist to the ultimate breaking strength.

Modern opening machinery, with its ability to open and clean without causing excessive fiber damage, is an essential in any mill which is using long-draft processes. The increasing use of air as a cleaning medium, as well as a transport medium, is having a beneficial effect on the state of the cotton reaching the card room. Concurrently, the tendency to condition the air in the opening and picking room assures the delivery of the stock to the card room with a uniform regain and the absence of the fiber disturbances caused by the presence of static.

The carding action as it affects the stock in the preparation for drafting requires only brief discussion. One of the functions of the card is to complete the mixing and blending; the other is the separation of the fibers and, incidentally, the reduction of the small aggregates, simultaneously with the re-

The manner in which carding is carried on has a definite effect on the ability of the drafting elements to operate without creating serious fiber displacements which show up as linear irregularities.



In the research for better methods of yarn production, special attention should be given to the bobbin-building mechanism on roving frames.

moval of the undesirable waste matter: short and broken fibers, seed fragments, pepper-like leaf, and pieces of hull.

To gain an understanding of the action of the card as a mixing and blending machine, examine what happens when a section of lap 40 in. wide, 1 ft. long, and weighing 13 oz. per yd. is fed to the lickerin through the feed rolls at a rate of 10 lb. per hr., which is equivalent to 1,239 grains or 7.84 in. per min., with 6% waste extracted during carding. Assuming that the card is clothed with #100 clothing, containing 79,200 points per sq. ft., 579,000,000 points of wire will pass by a point at the setting to the lickerin in a single minute with the cylinder making 165 r.p.m. In the same interval of time, 16,321,536 lickerin points will pass by the delivery of the feed rolls, and the ratio between these two figures shows that for every tooth of the lickerin which can pick up a small aggregate of one or more fibers, there are 36 teeth on the face of the cylinder which can receive the deposit. Herein lies the reason why the small aggregates of fiber, plucked from the fringe at the feed roll and nose plate by the lickerin are so widely dispersed on the surface of the cylinder and why, when the thin sheet is removed by the doffer and condensed by the large trumpet at the front of the card, the fibers have been separated and at least partially straightened, cleaned, mixed, and blended, and to a certain extent "fractionated."

The manner in which carding is carried on has a definite effect on the ability of the drafting elements to operate without creating serious fiber displacements which show up as linear irregularities. That is, the separation of the fibers in the card, and the loose manner in which they are found in the card sliver leave them free to move freely under the action of the draw rolls in the first drafting process to which they are subjected. It is important to remember that card sliver is the more even than any of the strands of stock produced at later stages of the spinning processes. Were it not for the lack of orderly array and parallelization, the card sliver could be passed directly to the first roving frame; and no one has the right to state categorically that this short cut will not be practical and feasible in the future.

Today, drafting assemblies are in a stage which nearly approaches mechanical perfection. The steel rolls are produced with practically no eccentricity; the latest type of screw joints are subject to virtually no wear; the finish is smooth; the roll fluting possesses the ability to hold and control the fibers without cutting or otherwise damaging them; the pressure can be controlled over the entire length of the drafting rolls without noticeable variation.

Steel top rolls highly finished to create a surface with low coefficient of friction are covered with leather, cork, or synthetic coverings to secure the elasticity or cushioning required for any weight of grist or type of fiber.

The Function of Drafting

THE PRINCIPAL FUNCTION of drafting is the reduction of numbers; this reduction in number is accomplished by the rolls—the faster-running rolls causing the fibers to move over each other. The fibers which first come under the nip of the faster moving roll proceed ahead of those which are still in the nip of the slower roll and those which are retarded by interfiber friction. This combination of forces has two secondary effects: first, it results in a certain amount of straightening of the individual fibers, and, second, it breaks up small clumps of fibers which, in spite of the preparatory processes, have remained intact until broken up by draft.

Thus there is a complex set of forces acting simultaneously on a mass of delicate fibers, each one perhaps different in some individual characteristic, yet all subject to the same forces applied by the drafting rolls.

The basis of all drafting mechanisms is the draw rolls. The idea of using draw rolls for drafting fibers was conceived by Wyatt or Paul was patented by the latter, in England, in 1738. The fundamentals of this invention remain unchanged to this day. The drafting-rolls assembly consists essentially of four major units and three secondary units which affect the efficiency of the major units. These units, which can be thought of as the mechanical group and which are largely under control of the machinery manufacturer, are listed in Table I (on next page).

Factors under control of the operating staff of the mill, which influence the drafting operation are listed in Table II (on next page).

Roll Stands. Roll stands should be so designed as to support the moving roll assembly in a manner which will allow its free circular motion, to provide adequate bearings which will operate under low unit loadings, and permit ready access to all parts for lubrication, cleaning, and inspection. Stands must be placed at intervals which will prevent the deflection of the steel rolls, which must be considered for calculation purposes as a simple beam uniformly loaded. Latest practice is to design draw-frame rolls on the basis of 16 to 18 in. gage, roving roll on a 6 to 8 in. space, with a 24-in. roll, and spinning on the basis of 6 spindles to a roll ranging in length from 18 to 24 in. With rolls of 1 in. diameter and over, there will be a

Consider the DRAFTING OPERATION

large factor of safety as far as deflection and torsional stress is concerned.

Since long-drafting has a tendency to produce more fly than conventional drafting, it is necessary that the roll stands be made with contours which are easy to clean, and the finished surfaces should be provided with a finish which will not catch or hold lint and dust. Bearings for the roll should be provided with adequate means for lubrication, and in roving and drawing, with readily accessible means for varying the center-to-center distances of the bearings, to allow the necessary settings. It is the custom to build the stands used on drawing and roving so that the rolls will be in a horizontal plane; in spinning, the plane is at an angle to the horizontal, generally from 27 to 35°. A stand with a 30° angle and set about ½ in. back from the edge of the roller beam has proved generally satisfactory in practice. Placing the stand with a 30° angle allows the twist to run right to the nip of the roll and at the same time facilitates the gathering of the fibers on the edge of the strand to the core of the yarn by the twist.

Bottom roll. The first requirement of the steel bottom roll in any modern long-draft system is the ability to grip the mass of fibers securely and to draw them from the heavy grist uniformly, without damage and without permitting any slipping under strain. To attain this objective, the rolls must be provided with a system of fluting, the design of this fluting being governed by the grist of stock passing through the rolls. Any system of fluting must possess fiber-holding qualities, but the flutes must not be so sharp that they will cut the fibers or ruin the top-roll covering. In addition, the flutes must be so spaced as to avoid their tracking on the top rolls, and so contoured as to prevent the impacting of waste matter and atmispheric dust. The finished roll must operate without eccentricity, must be assembled with joints which are secure under all operating conditions, and must not develop wear or backlash under torsional strain. The roll must be made from a material of high strength, so that the necessary structural stability can be assured with the relatively small diameters necessary for the settings used when working ordinary cotton.

The trend toward longer frames has complicated the design problem, and purchasers of long-draft equipment should be sure that the rolls of their new frames are held to reasonable lengths. Rolls over 50 ft. long in spinning are likely to develop operating annoyances.

The modern steel roll is a durable unit, but deformation may result when the boxes in which shipment is made are roughly handled. Accordingly, boxes of new steel rolls should be handled with all the care to which precision machinery is entitled, because no drafting system will operate at its best with eccentric rolls.

Top Rolls. The high degree of effective fiber control which is essential for the best results in long drafting depends to a great extent on the design of the top roll and the condition of its covering. The modern top roll is generally made of steel, with an over-all finish which produces a surface which has a low coefficient of friction. At times, a supplementary finish is applied to add certain tarnish-resisting qualities to the metal. Modern top rolls possess design features which prevent contamination of the covered surfaces by oil accumulations of fine fly and lint around the roll necks and gudgeons. Other design features, such as the slight projection of the gudgeons over the nebs of the cap bars, facilitate cleaning.

Roll Covering. In normal times, mills have a wide choice of materials for covering top rolls. Former roll-covering practice involved the use of a resilient and cushion-forming roller cloth, generally made of virgin wool, cemented to the surface of the roll over a priming coat of white lead; the working surface, usually consisted of calfskin for drawing and roving and for the coarse numbers of spinning and sheepskin for the finer counts. In recent years, there has been a marked trend toward use of cork and synthetic coverings.

The essential features of the resilient type of top roll are a surface which possesses sufficient cushion to product a fiber-gripping condition in conjunction with the steel roll, and ability to resist distortion under pressure and to operate without loss of efficiency over long periods of time. The covering must not be conducive to the formation of eyebrows or to the creation of static. It must not have any affinity for cotton fiber, wax, or oil. It must be easy to clean and resistant to moisture and heat, and it must not be thermoplastic to any noticeable extent at mill temperatures.

* * *

It has been shown that, despite the mechanical perfection of modern drafting assemblies, variations of as high as 200 to 300% occur over long lengths of yarn. Research for better methods of yarn production should, therefore, be extended to a wider field than that of drafting rolls and their accessories. Such research should include an investigation of the preliminary processes, as well as those which follow carding. There is need for further study to determine proper roll settings, drafting speeds, and amount of drafting at various stages and with different varieties, grades, and staples off cotton. Special attention should be given to the bobbin-building mechanism on roving frames. For example, it should be possible to improve greatly on methods used today by mills to control tension on the roving and thus prevent the linear irregularities which are created while the soft strand is being twisted and wound on the bobbin. Finally, it is emphasized that improvement of the drafting operation offers a good starting point in the quest for the stronger and more uniform yarns which will be needed to meet post-war needs.

TABLE I.

Essential units in drafting-rolls assembly

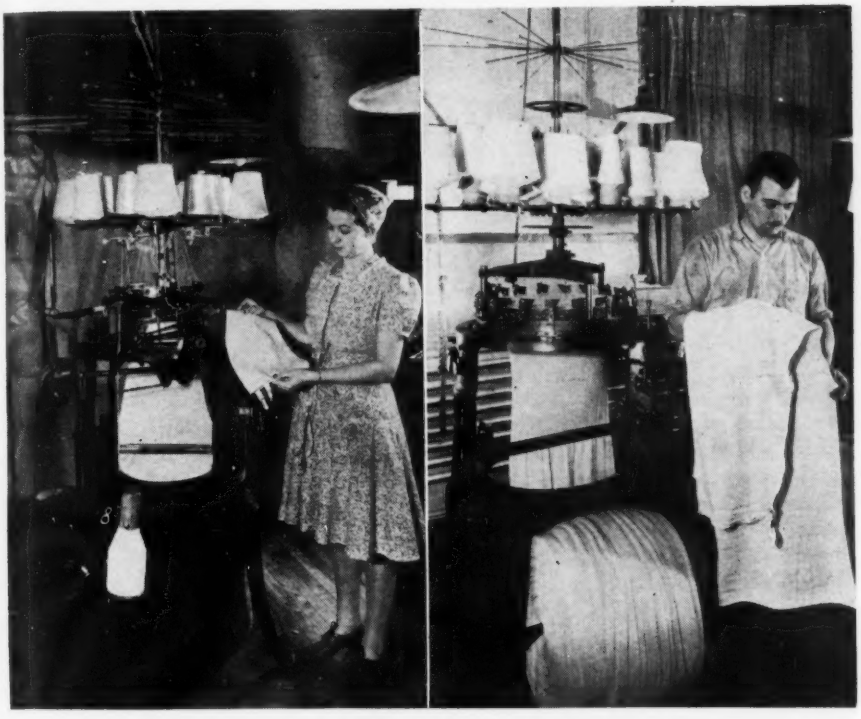
Major Units
Roll stands
Steel bottom rolls
Top rolls (either metallic or resilient)
Weighting or pressure system
Secondary Units
Top clearers
Bottom clearers
Traverse motions

TABLE II.

Factors influencing the drafting operation

Roll settings
Type of roll covering
Condition of rolls
Care afforded assemblies
Speed of drafting
Amount of drafting at a given stage of yarn manufacture

Textiles in the War



Ribbers for making elastic girdles have been converted to making stockinette bags for covering meat for wartime shipment overseas. Under direction of C. D. Maldoff, the plant of Formcraft Fabrics, Ltd., Montreal, Canada, has made this changeover. The ribbers were changed to knit jersey cloth, the former dials, drums and design wheels being removed. Firm has machines from 4½ to 20 in. in diameter, and Canadian meat, from sides of beef to slabs of bacon, are going to the fighting forces in bags from these machines.

What the enlisted man on Arctic duty wears. Coat is of wind-resistant poplin, OD on one side and white on the other; a sheepskin lining is provided. The manikins is part of the QM exhibit recently opened in New York.

The woman's auxiliary to the Marine Corps is to be comfortably dressed this summer. Enlisted personnel (at right) will wear green-striped seersucker; officers (at left) will have white cotton gabardine dresses.

A double play by the National Cotton Council and the Army Quartermaster Corps has resulted in the issuance of a series of 13 posters in cartoon form designed to impress the vital role played by cotton in the war effort. Cartoons are by Staff Sergeant Max P. Milians, Public Relations Office, QMRTC, Camp Lee, Va. Above is just one of the series. The posters measure 22x17 inches.

No "Cut-Back" Seen Due in Textiles

Expansion of output must keep on and on indefinitely, says Washington

By BLAINE STUBBLEFIELD
WASHINGTON, D. C.

TEXTILE PRODUCTION must keep on expanding indefinitely. Donald Nelson, chairman of the War Production Board, and the Army and Navy are in full agreement on that program.

The administration is most anxious to avoid clothing rationing; Mr. Nelson believes it can be avoided by maximum production and conservation. Rationing would be terrible, in the words of a top WPB authority, meaning it would be a new headache for Washington. Actually, it would work little real hardship on the public.

One thing that could bring an emergency in textiles would be the occupation by United Nations forces of some large Axis captive country in which the people were found to be threadbare. Quite likely we shall have to sell or give textile products to enemy peoples when they have been defeated, but that is a political hypothesis that the high-ups don't want to talk about. There is no limit in sight on Lend-Lease and other foreign demands.

Indications are that Washington has stoutly resisted British suggestions that we ration clothing. England, the only other free country having capacity to export textile products in quantity, cut its production back too far, with the result that this country is carrying more than its share of the load. The future is unpredictable, but there is no sign in Washington of imminent rationing.

There is much uncertainty in the industry as to how textile production and expansion is being conducted and planned in Washington. This uncertainty is caused partly by rumors, hurried news reports, unfounded anxieties.

Frank Walton, chief of the Textile, Clothing and Leather Division of WPB, said to TEXTILE WORLD's representative that far too much worrying and loss of time and temper are based on grapevine information and misunderstanding. The Division receives many inquiries (and so does TEXTILE WORLD) which are clearly answered in the text of official orders.

One constantly recurring rumor is that the Office of Economic Stabilization is going to bang out an order some day that many kinds and constructions of cloth be drastically changed and reduced. Judge Byrnes, now administrator of the Office of War Administration, could cause any sort of order to be issued, but there is no discoverable clue that he intends to do so. Similar stories were circulating with reference to the new Office of Civilian Requirements, headed by Arthur D. Whiteside. A list of 63 end-uses for which it is proposed fabric no longer may be bought or sold has been published but is still under discussion and development. Both OES and OCR are constantly advising with WPB's Textile Division, but neither of the former is authorized to issue any orders to the industry.

ONE OF THE FAVORITE SUBJECTS for worry by textile producers is the supply of maintenance and repair parts. A checkup at the Textile Division seems to show that mills have always received all the parts they need, that no serious delays have resulted from non-delivery of parts. There has always been an order providing for maintenance under the war program, beginning with P-53. The current order on parts is P-139, and its rating has been raised from AA-2X to AA-2, whether for military or civilian production. A careful reading of this order can leave scarcely any doubt as to what it means and what the applicant should do. New textile machinery is strictly controlled, but "must" requirements are provided for by order L-215, which covers both sale and purchase. There is no official opinion, but WPB obviously feels that the textile plant will stand up, under the program of repair and replacement, for any possible duration of the war.

Newest specific requests for increased textile production, in accordance with Mr. Nelson's expansion policy, are for additional 220,000,000 yd. of cotton fabrics without the use of additional facilities, and for a 6% increase in woolens and worsteds, amounting to 30,000,000 yd.—both on annual basis.

The cotton increase is expected to result from the simplification of a long list of constructions under L-99, covering 55% of the total 220,000 looms. Thomas Bancroft, chief of the cotton branch, said the order is another step in the overall cotton-textile program to bring about the maximum production of serviceable cotton-textiles per machine hour.

Kenneth W. Marriner, chief of the wool branch, indicated that, because of variations of raw materials and methods of manufacturing and finishing, increased production could best be accomplished if the mills are allowed to "use their own judgment as to which fabrics are best suited to their own particular machinery and manufacturing experience."

THE TEXTILE BRANCH sees the manpower situation vastly improved as a result of Selective Service's now-famous

WPB LIMITS USE OF RATINGS

Probably the final effort of the Board to avoid the allocation of textiles is WPB's order M-328, restricting the use of preference ratings for distribution of textile products to the most essential purposes. Military and certain essential claimants for textiles top the priority list; all other preference ratings are cancelled. Describing the move as an effort to "wipe the slate clean", WPB officials point out that once producers and distributors have met the essential demands, they have the opportunity to distribute the remaining output among their customers on a sounder basis. Responsibility for an even distribution of goods now rests with them. The order aims to eliminate the confusion in the market as a result of allowing uncoordinated and uncontrolled assignment and extension of ratings for textile items, either under WPB orders or CMP regulations. In too many cases, WPB states, there has been misuse of orders and regulations whose original purpose has been misinterpreted.

The order cross-cuts the entire textile field. It applies to all yarns and fabrics, including cotton, wool, synthetics, and blends, clothing, with the exception of specified types of clothing designed for protection against occupational hazards. All cordage fibers and products made from them are also included in the government agency's order.

Bulletin 20, which put the manufacture of civilian yarn and cloth on a par with military production as essential employment. Production of civilian goods is also in the class of essential activities with reference to regulations governing military deferments. The Bulletin was issued in conformity with War Manpower Commission policy. The President's "hold-the-line" order on wages and prices, and WMC's job freeze order, also helped, in a lesser degree. (See page 65, TEXTILE WORLD, May.)

As a result of these actions, textile workers no longer must leave their jobs to seek "essential" work, nor are they denied deferment in accordance with regulations. These workers know that the plants they work in are as important as bomber plants. In fact, it is said in WPB offices here, that some workers from non-essential industries are now coming to the textile industry. The Textile Division is ready to press for more manpower if it is needed.

As this writer previously reported the President's hold-the-line order on prices and wages seemed sure to meet heavy resistance. The War Labor Board since then made a half-hearted stand against United Miners' demand for a $2 wage increase, and OPA is making a weak effort to roll back and hold prices. In the case of textiles, OPA said "No upward adjustment of yarn and textile prices is contemplated," and the announcement by OPA Administrator Prentiss M. Brown advised any persons who might have been holding back production or sale of these goods in the hope of obtaining higher prices, to "resume normal operations." At the same time, OPA did increase by about 6% the ceiling prices on sales of combed cotton yarn for military procurement.

Spokesmen for the Office of Civilian Requirements admitted concern about the textile industry's price ceiling problem, and said they favored upward adjustments to insure capacity operation. They said the Smaller War Plants Corp. might be asked to subsidize those who cannot earn a living profit under the ceilings. How much weight such recommendations would carry cannot be estimated now.

Record Textile Research Program

INDUSTRY-WIDE RESEARCH and attendant financial collaboration in the textile industry on a national and unprecedented scale were foreshadowed May 27, when the board of directors of Textile Research Institute, Inc., unanimously approved plans for a five-point program of cooperative industrial research. The directors also approved a $2,000,000 fund-raising project to support the program.

Announcement of the plans and their adoption was made by Fessenden S. Blanchard, president of the Institute, following the board meeting at the Hotel Roosevelt.

Submitted to the board by its executive committee after several months of study and development, the plans, it was stated, "are a direct outcome of the growing recognition that the technical basis of the textile industry is rapidly being revolutionized." Declaring that there is an immediate need for intensive industrial research both for wartime needs and for the peace-time situation ahead, the executive committee stated that the program contemplated attacking both problems on a cooperative industrial basis. It was revealed that the program will be undertaken adjacent to, and in conjunction with, a recognized college or university to be selected.

In order to finance the program the board authorized the creation of a finance committee to seek from the industry a fund of $2,000,000 at the rate of $300,000 a year for a five-year period, plus a capital sum of $500,000.

Members of the executive committee, whose report was unanimously accepted, are Fessenden S. Blanchard, Fuller E. Callaway, Jr., Robert E. Rose, Dr. Harold DeWitt Smith, Edward T. Pickard, W. D. Appel, Douglas G. Woolf and Stanley B. Hunt.

The five-point program of the institute comprises fundamental research in all major fibers both natural and synthetic; applied and processing research in each of the major branches of the industry; economic research; a research information service, and scientific training of picked graduate students. The committee's report placed special emphasis on the last-named in recognition of the growing need in the textile industry for research men of the broadest possible training.

The directors decided that the institute's program should include the industry as a whole and not concentrate on any one type of raw material—whether cotton, wool or rayon. The report emphasized the tremendous growth in the use of synthetic fibers and other developments which are breaking down the barriers which once existed in the industry. The primary need today, the directors stated, is for the broadest possible approach to the needs of the industry as a whole.

The Institute was established in 1930 as the United States Institute for Textile Research. Its present board of directors consists of W. D. Appel, chief, Textile Section, National Bureau of Standards; John Bancroft, Jr., president, Joseph Bancroft & Sons Co.; Arthur Besse, president, National Association of Wool Manufacturers, Fessenden S. Blanchard; F. Bonnet, director, Standards Division, American Viscose Corp.; C. F. Broughton, president, Wamsutta Mills; Fuller E. Callaway, Jr., president, Callaway Mills; H. M. Chase, director of research, Riverside & Dan River Cotton Mills; Earl Constantine, president, National Association of Hosiery Manufacturers; Erb N. Ditton, director of research, Gotham Hosiery Co.; Alban Eavenson, Eavenson & Levering Co.; Russell T. Fisher, president, National Association of Cotton Manufacturers; Ephraim Freedman, director, Bureau of Standards, R. H. Macy & Co., Inc.; H. Grandage, vice-president, Clark Thread Co.; M. Earl Heard, research director, West Point Mfg. Co.; Marland C. Hobbs, vice-president, Arlington Mills; Charles J. Huber, development engineer, Johnson & Johnson; J. Spencer Love, president, Burlington Mills Corp.; W. M. McLaurine, secretary, American Cotton Manufacturers Association; Louis A. Olney, professor, Chemistry & Dyeing, Lowell Textile Institute; Edward T. Pickard, secretary and assistant treasurer, Textile Foundation; D. H. Powers, Monsanto Chemical Co.; Robert E. Rose, director, technical laboratory, E. I. du Pont de Nemours & Co.; Edward R. Schwarz, professor, Textile Technology, Massachusetts Institute of Technology; Albert L. Scott, president, Lockwood Greene Engineers, Inc.; Harold DeWitt Smith, treasurer, A. M. Tenney Associates, Inc.; Charles A. Sweet, vice-president, Wellington, Sears & Co.; A. M. Tenney, president, A. M. Tenney Associates, Inc.; Albert C. Walker, Bell Telephone Laboratories; Douglas G. Woolf, Editor, TEXTILE WORLD.

Post-War Textile Manpower Plans

In England the industry itself is developing its own blue-print

Out of the welter of post-war planning, with its currents and cross-currents of wishful thinking and honest endeavor and group interests, one fact—and possibly only this one fact—emerges as incontrovertible: The basic problem in all countries is the re-employment of manpower in peacetime jobs, with reasonable assurance of both security and opportunity. Unless that problem is solved, no other post-war problem is soluble.

Unemployment and insecurity, following World War I, were undoubtedly the primary and fundamental cause of World War II. Argue this thought any way you want to; the fact still remains that countries where there are full employment and economic security are not breeding places for war. Conversely, countries where there are unemployment and insecurity are ideal breeding-places for pests like Hitler, and consequently for another inevitable war.

The textile industry is a perfect case-study for those who are willing to examine open-mindedly the effect of employee-instability. In the present manpower shortage, we are apt to forget that for most of the years between World War I and World War II, textile manpower in this country was a glut on the market. That that same set of circumstances will return, unless we do something about it, is as plain as the nose on one's face.

England had the same problem in textile manpower during the interval between the wars—only more so. England did nothing about it during that interval—but she is starting to do something now. The accompanying article tells what her plans are.

Granted that there are many differences between the situation there and here, the fact still remains that the basic problem is the same: the profitable re-employment of textile workers, to withstand whatever depressions may lie ahead of us.

More than that, the fact protrudes from this article, and from its supporting documentation, that the initiative was taken by the British textile industry, by the Textile Institute, to be exact. That is the way the problem *must* be approached here. Otherwise, starry-eyed boys with no knowledge of the facts of industrial life will make the blue-prints for us. They are busy on just that job today in Washington. It is up to us to beat them to it.

—*Editor.*

By A. WYN WILLIAMS

THE MANPOWER PROBLEMS of the English cotton manufacturing industry are both immediate and distant. Into the immediate one enter factors of quantity and quality; into the distant one, only one of quality.

While the war lasts, the problem is to offset mistakes made two years ago when the industry was made the guinea pig for Britain's war time experiment in the concentration of industry. The compulsory closing down, in the spring of 1941 of more than half the spinning mills (217 out of 503) and over a third of the weaving sheds (428 out of 1238) had unfortunate consequences, not foreseeable at the time.

To make up for the wartime lack of textile manpower, Britain has, for the last two years, strictly rationed clothes for civilians, and the curbs are being progressively made more severe in a program that permits a woman to have only about two dresses a year, and a man, a new suit every two.

The acute manpower shortage will, it is now realized, last for the rest of the war. Overtime, which it is proposed to apply this summer, as was the case in the summer of 1942, and the recruitment of married ex-textile female operatives for part-time work, may do a little to relieve the underproduction. Britain's manpower policy in textiles, without attempting to assess the blame, has, without question, hampered the war effort, besides causing privation to the civilian population with whatever damage to morale this may involve. It has also prevented Britain, to an unwarranted extent, from supply much-needed export markets, the cultivation of which is most essential for her post war economy.

It is, however, Britain's experience with her wartime shortage of manpower that has served to bring into the foreground the distant problem. It has been realized that cotton textiles along with several other industries is suffering not only from a deficiency in the quantity of its manpower but also in its quality. With the need for maximum war production, it has been found that certain industries with more men employed and no excessive absenteeism have a falling rate of production.

Any industry which, before the war, did not give its workers promise of financial security and prospects for the future failed to attract into its working forces youthful new recruits. When maximum effort is required for war production, the generally aged character of the workers in such industries reflects itself in an inability to deliver the goods. In coal mining over 40% of the workers are over 40 years of age.

Similarly, because cotton textiles has been unable to attract youth, it has become in Britain an old people's industry. The average age of its labor force has steadily risen. In 1911 it was 29; in 1921 it had risen to 31½; to 34 in 1931, while today it is as high as 38, with the average age of those actually operating machines still higher at 48.

THE BRITISH COTTON INDUSTRY, realizing the implication of such a trend for its future has decided to adopt drastic corrective measures. For the first time in British industrial history the revolutionary course has been adopted of appointing a joint committee for an industry as a whole "to formulate and supervise the execution of a planned program of recruitment, selection and training of youth for the industry." The committee consists of representatives of employers, workpeople, educationalists, the Board of Trade (corresponding to the Department of Commerce here) and the Ministry of Labor. The initiative was taken by the industry, dating back to a conference held by the Textile Institute in 1939.

That the industry did not wake up any too soon to the need of attracting the youth back is proved by the fact that while in 1911 the number of juveniles that entered it was 113,700 and 60,600 even in 1931, the number was only 21,000 in 1942. One mill owner took a census of his married employees to discover how many had children who had followed the family tradition and become textile operatives. Only three married operatives had sent their children into the mill. The old pride of

craftsmanship handed down from father to son and from mother to daughter has disappeared from English textiles. On the contrary, parents are sacrificing so that their children can do anything other than follow their father or their mother's occupation in the mills.

The problem is being attacked from every one of its many angles, and the disagreeable truth is being courageously faced that cotton textiles is an old industry that has not modernized its methods and technique toward its labor. It is still living in the 19th century. One of its main problems is that youth who come from textile families have an inherited dexterity of hand that makes their skill particularly valuable in such newer industries as aircraft building or electrical engineering, industries with modern plants and modern ideas of amenities for their employees.

Therefore the first long overdue step is being taken of bringing the textile factory out of the "slum" industry class. While it is realized that all old textile plants cannot be torn down overnight and replaced with modern chromium-plated buildings, it is, nevertheless, recognized that they can be cleaned up and painted. Air-conditioning can generally be installed in an old plant equally as well as in the modern one, and the old policy of regarding drafts as the equivalent of good ventilation can be changed.

Textile plants can also arrange equally with the newer industries amenities for its workers in the way of shower baths, lavatories, canteens, cloakrooms, etc. All these deficiencies the English cotton industry is going to remedy so that the youthful recruit will not feel, as has been the case of late years, that, in becoming a mill hand, he is losing caste. Facilities for sprucing up in the mill before leaving for home after the day's work will, it is hoped, stop the trend for youth to take up "blackcoated jobs" (the English for "white collar") which are considered more dignified although they may be more poorly paid.

THE TENENCY OF TEACHERS to regard manual work as degrading is also going to be taken in hand, and their cooperation is to be sought so that they will encourage the youths with the proper qualities to enter the industry rather than dissuade them. The Council of the British Textile Institute has recommended that the claims of the industry and the clear outlines of possible careers in it should be made known in the schools by active propaganda in the form of handbooks for the teachers and illustrated literature for the use of the children in school and at home. Contact between the industry and the schools is to be established by visits to mills by children. The appointment of educationalists to the committee of the industry will insure that these recommendations are carried out.

Another problem that is going to be attacked is that a youth will enter an industry with lower pay, but a certainty of prospects, in preference to one with a high wage level but relative insecurity. The average daily wage of the English textile worker, while not so high as in some industries, is nevertheless much higher than that of others that compete successfully for the skilled hands of the youth from textile families. Since 1925, however, cotton manufacturing has been subject to long periods of depressed operations and the industry, in general, is a contracting one in the number it employs—the latest figures before the war showed a reduction from 500,000 in 1913 to 350,000. The ambitious youth will not favor a contracting industry because the chance for advancement is less.

Also, owing to technological improvements, the British cotton industry is pockmarked with certain dead-end skills. For example, the change-over from mule spinning to rings is only proceeding leisurely. The youth who becomes a little piecer, under the old order of things could never become anything higher than a relatively low paid big piecer, who, with the modernization of equipment is eventually likely to find himself out of a job altogether, except in an unskilled trade. This prevalence of so many blind alleys has been a large factor in youth shying away from the industry and especially in their reluctance to learn skills which mechanical progress will, presently, make outmoded.

THE BLIND-ALLEY PROBLEM is going to be thoroughly attacked in a scientific manner. In future all youths entering the textile industry will have an opportunity to better themselves, as it is proposed that, until they are 18, they will only work part time and spend the rest of the day attending technical schools. Therefore those who have adaptability can, as a result of the part time training scheme, qualify themselves out of any blind-alley job to which they may have been directed on first entering the mill. The course of training at the proposed new technical schools will include an extension of the general knowledge which the youth will have acquired at the grade school, some technical education, mathematics, science as applied to workshop processes, workshop drawing, and craft work.

When the youthful operative has completed his part-training at the technical school, if he shows exceptional ability, he can qualify for a three-year scholarship which he can choose to use in a variety of ways. He may pursue, to a more advanced stage, his technical studies at a university or technical college, or he may follow a managerial course at some institution that specializes in personnel training. On the other hand, he may choose to spend three years getting practical knowledge of some allied industry whose products the textile industry may use, such as the dye industry. Also it is conceivable that he might want to use his scholarship to travel abroad whether to gain knowledge of markets or of foreign processes.

This program of the English cotton industry to coax the youth back into what had become to him an unattractive prospect is most ambitious and constitutes a revolutionary new relationship between it and its operatives. If England's cotton industry in the future does not show the progressiveness that marked it in the early nineteenth century, in contrast to its later lethargy, it will not be for lack of plans for its improvement. At the same time, if proposed plans are carried out, to the youth in the textile districts of England is held out the same hope of attaining the topmost position in the industry as was held out by Napoleon for his army, when he said that the lowest private held in his knapsack, a field marshal's baton.

While the joint committee, consisting of representatives of the cotton industry and of other interests associated with it, will be responsible for general policies of the plan, its specific execution will be the duty of a full-time recruitment officer and his staff whose salaries and administrative expenses will be defrayed by the industry as a whole.

Fulfilling the guarantee of a secure future in the cotton industry for the youthful entrant depends upon a factor, at present, unpredictable: the size of Britain's post-war export trade in textiles. One thing is known, that the best brains of the cotton industry are putting forward their best efforts to draw plans for its utmost expansion. It is also apparent from many indications that the Ripvanwinkledom of the industry is over and the program for the recruitment of youth is the latest of many signs that the post-war world will find it not only one that is rejuvenated in its operatives but, also, in its marketing as well as in its manufacturing techniques. For Lancashire, the same conditions that brought about the need for Lend-Lease ended the days of its traditional "laissez faire."

Employee-Morale Boosters

Mills Sponsor Anti-Absenteeism Radio Skit

A radio program called "Sabotage, the Slacker," done in the manner of the "March of Time" and aimed to cut down absenteeism, is being sponsored by 10 mills in the Greenville, S. C., area for broadcast over station WFBC for a period of 13 weeks. Charles Gullickson of the staff of WDOD, Chattanooga, Tenn., writes the script which runs about 30 minutes and uses from 12 to 15 actors in each installment.

It is expected that the textile industries of Spartanburg and of Charlotte may also be interested in the program, and a plan for making recordings available is being worked out. It has been brought to the attention of the Manpower Commission for even wider use.

Callaway Writes to Its Service Men Every Two Weeks

Callaway Mills, La Grange, Ga., have established the Callaway Armed Forces Center, to see that the armed forces get "letters from home." The center has a file on every boy and girl from the organization who has entered the service. Letters are sent to each one every two weeks with news of happenings in the home town. Letters received get personal answers, and greeting cards and gifts are sent to those in hospitals.

American Viscose Gives Salvage Award

Twenty-seven employees of the American Viscose Corp. were presented with the company's Salvage Award medal, named in honor of Sir Samuel Salvage, past-president and dean of the United States rayon industry, at a luncheon on April 30, in New York. The Salvage Awards, established last year, are to be made annually and are given in recognition of outstanding action or achievement beyond the usual performance of duty.

A broad cross-section of the company's employees was covered in the award recipients. Awards may be given for many reasons—an important discovery, an outstanding development, a suggestion leading to an important improvement, perseverance in carrying a difficult assignment even over a long period of time, outstanding performance of routine work, unusual service, helpfulness to associates, loyalty, and devotion to the corporation's welfare. The awards are the corporation's public expression of appreciation for such acts and such performance of duty.

Among the Victory Gardeners

Among the many mills which are cooperating to make the victory garden program successful among their employees is noted the Cherokee Spinning Co., Knoxville, Tenn., which has furnished instruction books and seeds to about 400 of the employees who took advantage of this assistance. In New England the Bell Co., Worcester, Mass., has made available to its employees 40 acres of cleared land for gardens. The company did the plowing and harrowing, and garden plots 50 x 30 ft. were allotted by raffle among the employees who wanted to use them.

This is an automobile windshield sticker now being used by employees of American Viscose Corp's plant at Marcus Hook, Pa. The entire rayon production of the plant is being used in military equipment, chiefly fragmentation bomb parachutes and aerial delivery and cargo parachutes; also tow targets for aerial gunnery practice.

Shares Earnings with Employees

To all of the operatives of the Joanna Textile Mills Co., Goldville, S. C., who have been with the mills continuously for six months or more during the fiscal year ended March 31, the company distributed a bonus of $85,000 last month. The announcement was made by W. A. Moorhead, resident manager, who stated that the bonus amounted to 7% of all wages earned during the year.

"Our company shares the profits with its employees, and, in addition, gives them a week's vacation with pay each year," Mr. Moorhead said. The company employs 1,100 persons.

"It is Uncle Sam Calling"

In discussing absenteeism, Dr. W. P. Jacobs, executive vice-president of the South Carolina Cotton Manufacturers Association, and president of the Presbyterian College, Clinton, S. C., recently said:

"It is not a question of the interest of the employer or of the employee. It is Uncle Sam calling. It is a call to arms in the factory and in the field. No man has a right to loaf in times like this. It is our privilege to work. If we are not in essential occupations, most of us will be soon. If we are on essential activities, for the sake of the whole, we owe every moment of our time, every ounce of our energy.

"Too much absenteeism in this emergency may mean permanent absenteeism through the years to come."

Mother of DSC Winner Works for Bibb

Mrs. Jessie Forbes, the mother of Sgt. Sanford M. Forbes, the first enlisted man to receive the Distinguished Service Cross in the North African action, works at the Porterdale (Ga.) mill of Bibb Mfg. Co. Her son, who volunteered on Nov. 8, 1942, was the driver of a jeep carrying Brig. General W. H. Wilbur over 16 miles of enemy

territory. Driving his jeep under and around heavy fire, Sergeant Forbes delivered his General safely at Casablanca to talk to the French. Forbes also drove his jeep into action toward an enemy battery firing upon our boats and later helped bring in wounded Americans from the field.

He was decorated by General Patton, and he saw and talked with President Roosevelt at Casablanca. At the same time, General Wilbur received the Congressional Medal of Honor for the mission he and Sergeant Forbes completed which was of great importance.

Mrs. Forbes heard her famous son and General Wilbur over the radio in a special broadcast from North Africa when the two men told "How they did it."

Posters

Posters with the following titles are available free upon request to the Division of Public Inquiries, OWI, Washington, D. C.:

Give It Your Best,
United Nations Fight For Freedom.
Remember Dec. 7.
Americans Will Always Fight For Liberty.
They've Got More Important Places To Go Than You.
I'll Carry Mine, Too!
Plant a Victory Garden.
Where Our Men Are Fighting, Our Food Is Fighting.
Do With Less So They'll Have Enough.
Battle Begins With Your Job.
Next of Kin Has Been Notified.
When You're A. W. O. L.
Freedom from Fear, Freedom from Want, Freedom of Speech, Freedom of Worship.
For Their Future, Buy War Bonds.
Rationing Means a Fair Share For All of Us.
A Careless Word—A Needless Loss.
If You Tell Where They're Going, They May Never Get There.
The More Women AT Work, The Sooner We'll Win.
Save His Life And Find Your Own.
The Atlantic Charter.
Absence Makes the War Last Longer.

Textile Worker Sets Record

Frank Burdette of Calhoun Mills, Calhoun Falls, S. C., is believed to hold the record for a textile worker by working 124½ hr. in a single week recently. The mill is operating 3 shifts and Mr. Burdette worked on each shift from Monday until Saturday.

"Use the air you need but DON'T WASTE IT" is the theme of a new series of industrial posters sponsored by Ingersoll-Rand Co., manufacturers of air compressors and compressed-air-operated tools. The purpose of the series is to wage war on leaky hose couplings, valves, and other pipe fittings—and, by so doing, to help speed production and avoid wasted power. In several of the posters, both the "right" way and the "wrong" way are graphically illustrated. Above is one of the series.

Foreman's Authority Defined

THE FOREMAN—THE KEY MAN IN YOUR PLANT: National Association of Manufacturers, New York; 16 pages.

This pamphlet, issued last month by the National Association of Manufacturers, is a "check-sheet" of recommended procedures in the supervisory field which the association urges management to follow in order to build sound management-supervisory relations. C. Donald Dallas, president of Revere Copper & Brass Co., and chairman of NAM's Industrial Relations Policy Committee, stated that the booklet was the result of an extensive study by a special sub-committee appointed for that purpose.

"The supervisor today must exercise leadership under pressure," Mr. Dallas said. "In carrying out their jobs, foremen require authority consistent with their responsibilities. As an example, the foreman should have the right to approve applicants for employment whose work he must supervise; he should have the right to advocate discharge of employees; and he should be held responsible for the maintenance of satisfactory employment relations in the group he supervises. The foreman should normally be the first contact for workers who have grievances they wish to discuss."

It is recommended that foremen should be informed promptly by executive management of all important discussions with employee groups and representatives, and that executive management should seek "the observations and suggestions of the foremen upon production, personnel and operating problems."

Mill School Reduces Meat Shortage

The Durst school of a Greenwood, S. C., mill village have helped on the home front by purchasing a shoat "Pee Wee," and raising him on scraps or bringing pennies for hog feed. "Pee Wee" has gained a pound a day since January and is to be auctioned to the highest bidder. The proceeds will go to help win the war.

Greenville Personnel Meeting

Greenville, S. C., personnel executives met recently for luncheon and an informal discussion of personnel problems at the Parker High School. This group of executives meet informally at irregular intervals as the "urge" develops, and operating executives often attend as guests.

Absenteeism is a major topic of discussion and exchanges are made as to causes and remedies.

Operated a "Bond Wagon"

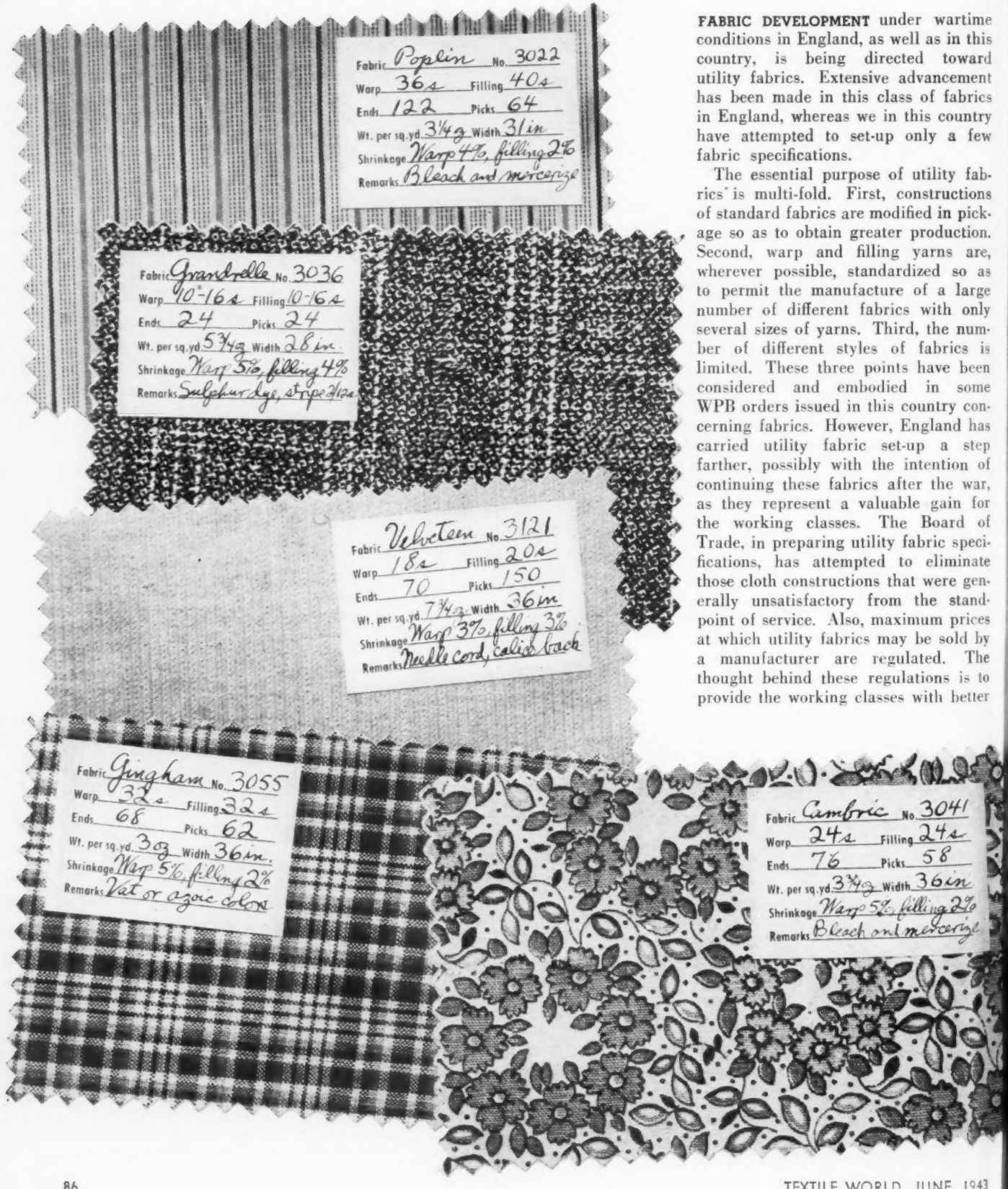
American Enka Corp., Enka, N. C., has had a "Bond Wagon" rolling through the various departments of the plant 24 hours a day, to sell bonds to workers on the three shifts. In the last year Enka employees have bought $321,865 worth of war bonds.

No Lost-Time Accident in 3½ Years

Vernon Mfg. Co., Orange, Va., locally called the Velvet Mill, of which W. J. Green is manager has been awarded a certificate of merit by the Liberty Mutual Insurance Co. for working 250,000 man hours since 1939, with a record of no lost time on account of injuries to employees by accident. Although involving only 50 operatives, the record extends over about three and one half years.

British Standard Utility Cloths

Gray construction details for cotton, filament rayon, and spun rayon fabrics


Fabric Poplin No. 3022
Warp 36s Filling 40s
Ends 122 Picks 64
Wt. per sq.yd. 3¼ oz Width 31 in
Shrinkage Warp 4%, filling 2%
Remarks Bleach and mercerize
Fabric Grandrelle No. 3036
Warp 10-16s Filling 10-16s
Ends 24 Picks 24
Wt. per sq.yd. 5¾ oz Width 28 in.
Shrinkage Warp 5%, filling 4%
Remarks Sulphur dye, stripe 2/12s
Fabric Velveteen No. 3121
Warp 18s Filling 20s
Ends 70 Picks 150
Wt. per sq.yd. 7¾ oz Width 36 in
Shrinkage Warp 3%, filling 3%
Remarks Needle cord, calico back
Fabric Gingham No. 3055
Warp 32s Filling 32s
Ends 68 Picks 62
Wt. per sq.yd. 3 oz Width 36 in.
Shrinkage Warp 5%, filling 2%
Remarks Vat or azoic colors
Fabric Cambric No. 3041
Warp 24s Filling 24s
Ends 76 Picks 58
Wt. per sq.yd. 3¾ oz Width 36 in
Shrinkage Warp 5%, filling 2%
Remarks Bleach and mercerize

FABRIC DEVELOPMENT under wartime conditions in England, as well as in this country, is being directed toward utility fabrics. Extensive advancement has been made in this class of fabrics in England, whereas we in this country have attempted to set-up only a few fabric specifications.

The essential purpose of utility fabrics is multi-fold. First, constructions of standard fabrics are modified in package so as to obtain greater production. Second, warp and filling yarns are, wherever possible, standardized so as to permit the manufacture of a large number of different fabrics with only several sizes of yarns. Third, the number of different styles of fabrics is limited. These three points have been considered and embodied in some WPB orders issued in this country concerning fabrics. However, England has carried utility fabric set-up a step farther, possibly with the intention of continuing these fabrics after the war, as they represent a valuable gain for the working classes. The Board of Trade, in preparing utility fabric specifications, has attempted to eliminate those cloth constructions that were generally unsatisfactory from the standpoint of service. Also, maximum prices at which utility fabrics may be sold by a manufacturer are regulated. The thought behind these regulations is to provide the working classes with better

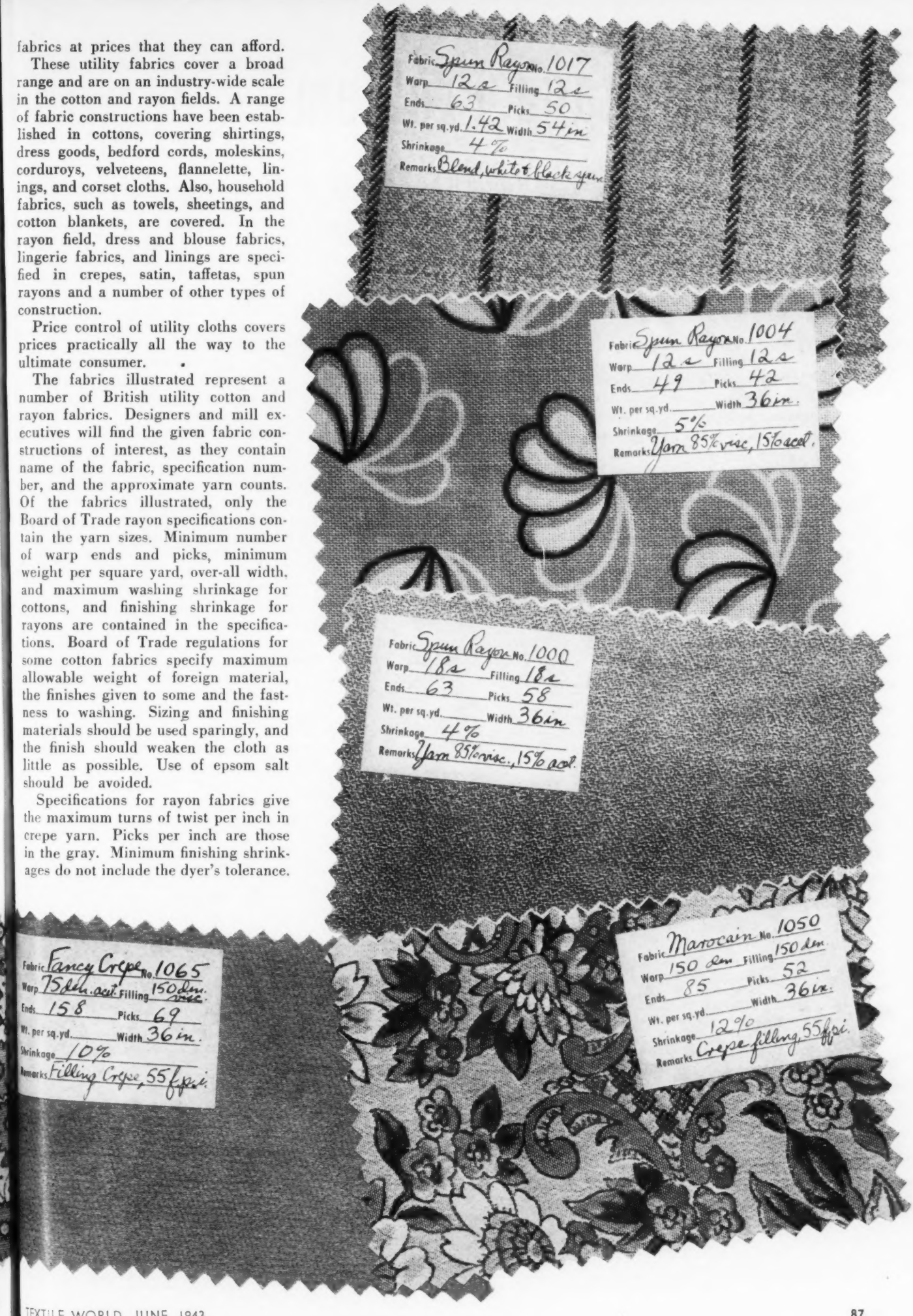
fabrics at prices that they can afford.

These utility fabrics cover a broad range and are on an industry-wide scale in the cotton and rayon fields. A range of fabric constructions have been established in cottons, covering shirtings, dress goods, bedford cords, moleskins, corduroys, velveteens, flannelette, linings, and corset cloths. Also, household fabrics, such as towels, sheetings, and cotton blankets, are covered. In the rayon field, dress and blouse fabrics, lingerie fabrics, and linings are specified in crepes, satin, taffetas, spun rayons and a number of other types of construction.

Price control of utility cloths covers prices practically all the way to the ultimate consumer.

The fabrics illustrated represent a number of British utility cotton and rayon fabrics. Designers and mill executives will find the given fabric constructions of interest, as they contain name of the fabric, specification number, and the approximate yarn counts. Of the fabrics illustrated, only the Board of Trade rayon specifications contain the yarn sizes. Minimum number of warp ends and picks, minimum weight per square yard, over-all width, and maximum washing shrinkage for cottons, and finishing shrinkage for rayons are contained in the specifications. Board of Trade regulations for some cotton fabrics specify maximum allowable weight of foreign material, the finishes given to some and the fastness to washing. Sizing and finishing materials should be used sparingly, and the finish should weaken the cloth as little as possible. Use of epsom salt should be avoided.

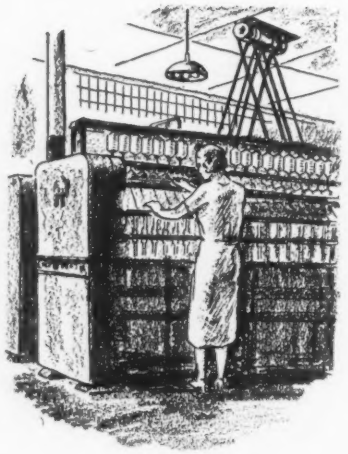
Specifications for rayon fabrics give the maximum turns of twist per inch in crepe yarn. Picks per inch are those in the gray. Minimum finishing shrinkages do not include the dyer's tolerance.


Fabric Spun Rayon No. 1017
Warp 12s Filling 12s
Ends 63 Picks 50
Wt. per sq.yd. 1.42 Width 54in
Shrinkage 4%
Remarks Blend, white & black yarn
Fabric Spun Rayon No. 1004
Warp 12s Filling 12s
Ends 49 Picks 42
Wt. per sq.yd. Width 36in.
Shrinkage 5%
Remarks Yarn 85% visc, 15% acet.
Fabric Spun Rayon No. 1000
Warp 18s Filling 18s
Ends 63 Picks 58
Wt. per sq.yd. Width 36in
Shrinkage 4%
Remarks Yarn 85% visc., 15% acet.
Fabric Fancy Crepe No. 1065
Warp 75 den. acet. Filling 150 den. visc.
Ends 158 Picks 69
Wt. per sq.yd. Width 36 in.
Shrinkage 10%
Remarks Filling Crepe, 55 fpi.
Fabric Marocain No. 1050
Warp 150 den Filling 150 den
Ends 85 Picks 52
Wt. per sq.yd. Width 36in.
Shrinkage 12%
Remarks Crepe filling, 55 fpi.

End Breakage Problem

Number of ends down per 1,000 spindles will reveal actual spinning performance

By CLARENCE McELROY and MARCUS GROSS



ENDS DOWN is a common expression heard in the spinning industry to describe spinning performance. Causes of bad spinning are so many and so variable that no single factor can be isolated. Good spinning is the result of overcoming the faults that cause bad spinning, and it will tax the ingenuity and intelligence of the supervisor to solve and eliminate them.

"No single factor can be isolated" is a collective phrase used to indicate that poor spinning may be caused by numerous causes which are interrelated. If old, worn rings retard the normal productivity of one spinning frame, wrong travelers may cause poor spinning performance on another. Therefore, each factor is important unto itself, in direct relation to any given test. Once the factor is revealed, the more important task is to eliminate it.

Number of ends down per 1,000 spindles (a standard) will immediately reveal whether the actual spinning performance is good, fair, or bad. A check chart has been prepared after a careful survey and extensive research concluded with the aim of standardizing with definite percentages the number of ends down. This chart (Table I) will serve as a guide in determining good or bad spinning performance.

In making the survey, the writers recognized that a definite maximum and minimum must be ascertained without curtailing normal spinning practices; that is, the number of ends down per 1,000 spindles that could be accepted as a maximum and still be construed as good spinning should be standardized. Conversely, the goal of a minimum would rely upon the supervisor's ability to eliminate the causes that produced the maximum. The ability of the spinner to maintain the efficiency of operation was noted after the maximum was set. The maximum used in these tests was 35 ends down per 1,000 spindles, or 3.5%.

Up to 3.5%, the capable spinner can successfully perform the task of maintaining good spinning performance. The cleanliness of the spinning frames and quality of the yarn is not impaired; production is constant. A higher percentage of ends down will invariably multiply the trouble because other tasks are neglected.

When 50 or more ends are down per 1,000 spindles, it can be construed as bad spinning, and spindles must be checked and corrected at once, or production will be curtailed. When an ends-down test is conducted, the percentage of ends down is written on the test sheet and will immediately reveal to the supervisor the spinning performance. This percentage is found by dividing the average ends down per 1,000 spindles by 1,000. To list all conditions that cause poor spinning is probably an impossible task. The many variables that are prevalent in the stock itself (staple, grade, character) and the processes of opening, mixing, beating, lapping, carding, combing and drawing, all bear a direct relation to the final drawing in the spinning department. But, in the spinning department the conditions listed in Table II can be checked in determining the cause of excessive ends down. A careful study of these causes may help to solve an ends-down problem.

TABLE I—Spindle performance check chart

Ends Down	Classification	% Per 1,000 Spindles	Remarks
5 to 15	Good	0.5% to 1.5%	No recheck necessary
16 to 35	Fair	1.6% to 3.5%	Few probable factors; check
36 to 49	Bad	3.6% to 4.9%	Many probable factors; check at once

Table II—Causes of ends down in spinning.

1. Uneven roving—light and heavy cross-sections; the light cross-sections are invariably broken by the traveler.
2. Hard twist roving; plucking through the rolls undrafted.
3. Scored and bruised top rolls.
4. Scored and chipped front roll bosses.
5. Thread-guides off-set.
6. Spindles off-center.
7. Old, worn, rings.
8. Wrong travelers—too heavy or too light.
9. Excessive speed, spindle and front roll.
10. Excessive drafts.
11. Not sufficient twist per inch.
12. Humidity too high or very low.
13. Slubs, neps, foreign particles in roving.
14. Yarn too light.
15. Worn, shaky bobbins.
16. Worn bolsters.
17. Dry bolsters—shaky spindles.
18. Careless cleaning.
19. Dry top rolls.
20. Slack tapes.
21. Not enough twist in roving.
22. Acute angles.
23. Frictional tempering of travelers—new rings.
24. Not enough leverage—check stirrups.
25. Wrong top roll settings.
26. Excessive number of turns of twist per inch for staple length.

Finishing 16-oz. Navy Meltons

Practical methods of fulling, scouring, carbonizing, steam brushing, shearing

By DAVID WELSH

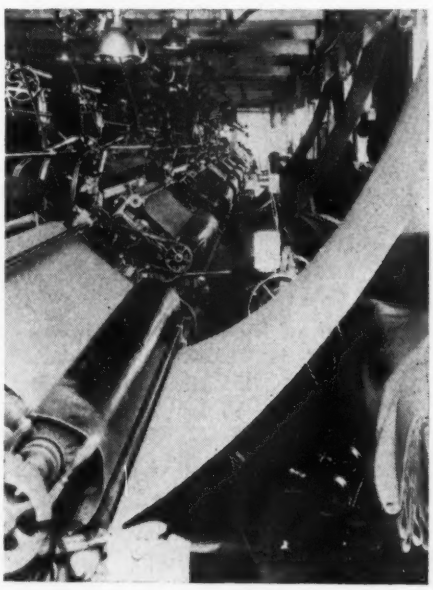
FULLING is the crucial operation in finishing the 16-oz. indigo-blue melton covered by Navy Specification 27M10b. Accordingly, in the following description of a finishing routine which has proved satisfactory for this type of fabric, special emphasis is placed on the fulling.

In burling and sewing this fabric, the main job is mending floats. Unfortunately, some of the floats are likely to be so bad that they cannot be mended. When long floats occur in the finished cloth, the section with the defects must be cut out of the piece. This remnant is not the only loss, as a price allowance has to be made for the short pieces.

After burling and mending, the goods must be tacked for the fulling and scouring operations. If the pieces are not tacked, they start rolling in from the selvages as soon as they begin running in the fulling mill, forming a two-sided rope that defies any shaking out and prevents the pieces from being kept flat. A minor, but important, matter is the thread used for tacking. Thread which is too thin gets buried in the listings and makes de-tacking difficult as the thread hangs to the cloth and also breaks easily. Most mills use a 16/4 cotton thread for tacking, but a 12/4 thread is much more convenient.

One troublesome characteristic of this fabric is the difficulty in getting it through the wet finishing operations without its developing a tendency to bleed and crock. For this reason, use of a suitable fulling formula is essential. The standard fulling formula of 8 oz. of soap and 4 oz. of alkali to the gallon causes excessive bleeding, which has been a veritable nightmare to many finishers. The writer has found that by using 10 to 12 oz. of a good heavy-bodied soap and only 2 oz. of alkali to the gallon, he is able to overcome the bleeding. In addition, this formula seems to result in better felting and considerably reduces the dead loss.

When the fulling solution recommended above is applied evenly to a load of goods in the mill, it apparently goes to work instantly, preventing any fibers from detaching themselves from the cloth and falling to the bottom of the mill. The amount of alkali present is sufficient to saponify or emulsify any oil in the goods, but is not enough to cause bleeding of the dye.



In shearing 16-oz. meltons, one run on the back and two or three runs on the face are usually sufficient.

Loading of the fulling mill must be done carefully, as tacked goods are more difficult to load than are untacked goods. The width of this fabric and the fact that each piece has to be doubled make loading still more difficult. If the pieces have not been soaped up in a soaper, but are entered dry, loading is even more of a task. It is unwise to over-crowd the mill. Attempts have been made to load three pieces on each side in some of the newer, large mills, but this is a waste of time and is otherwise undesirable.

By experiment, it has been proved that daily production can be increased by loading two pieces to a side. Each piece is doubled, making four strands on each side. With two, instead of three pieces to a side, loading is accomplished more quickly and the goods are less likely to become tangled or chafed. The measuring time is reduced because the ends are easier to find, and the mill is not stopped so often or so long at a time, with the doors open causing the goods to cool off. Further, with two pieces to a side, it is unnecessary to stop the mill so frequently to change the position of the pieces so that the widths will be uniform.

FOR SCOURING, the goods are put in the washer and run around once to allow them to straighten out. Then the gates are closed, and enough warm water is added to half cover the pieces. With the fulling formula recommended, it is unnecessary to add soap in the washer. After the pieces have run for 15 min., the gates are opened, and most of the suds permitted to run off. Next the gates are closed and a little more lukewarm water is added, together with 1 qt. of ammonia to each two pieces. This will form a lively lather which will remove any impurities from the fabric. The cloth is run for 20 min., rinsed for 30 min. in lukewarm water, and rinsed for 45 min. in cold water.

Following the scouring operation the pieces are de-tacked. If a detacking machine is employed, one man can do the job; otherwise it is a two-man job. After the goods have been de-tacked, they are run over a scutcher and a vacuum extractor, and are then folded full width on flat trucks or, preferably, into box trucks for tub-rolling.

To prepare pieces for tub-rolling, it is advisable to sew two cotton leaders between each piece and one leader on each end of the lot. The leaders should be long enough to reach through the rolling machine and to permit one end to be tucked under the wooden roll which rests on the winding-up drum. The water in the rolling machine is brought to a temperature of 190°F., and the machine is started. The first leader prevents the melton from coming in contact with the wooden roll on which the piece is wound, and the second leader prevents it from drying out on the end. One piece is wound on each roll, and the rolls are stood against a wall, making certain that only the end of the wooden roll touches anything. If the cloth were allowed to lean against the wall, or two rolls allowed to lean against each other, while the goods are

hot, serious staining might result. However, after the cloth is thoroughly cool, rolls can be laid down flat in piles without danger of marks of any kind.

When the pieces have cooled, they are unrolled, sewn together with a fairly strong silk thread, and folded into box trucks, ready for carbonizing.

CARBONIZING with 5° Bé. sulphuric acid will give good results, without dry milling or crushing. The speed at which carbonizing can be carried out depends on the type and size of equipment available. For neutralizing, the pieces can be transferred to a washer, run for 20 min. in cold water, then run for 20 min. with the washer one-quarter full of lukewarm water to which 2 qt. of ammonia has been added, and finally run for 20 to 30 min. in cold water.

Usually, if the goods are dried to about 60 in., they will finish to the required finished width. Sometimes they must be dried to a wider width and sometimes to a narrower one. A few trial runs will reveal the proper width for drying.

After drying, it is advisable to run the pieces over a steam brush before steaming. Steaming will make shearing easier, and will improve the appearance and feel of the fabric.

In shearing, one run on the back and two or three runs on the face are usually sufficient. Another run on the face on the steam brush to lay the pile in the right direction before semi-decating is a help. Some mills finish them this way; others press before semi-decating; and still other semi-decate before pressing.

How to Save Time in Vat Dyeing

DETAILS OF A NEW OXIDIZING PROCESS which reduces the time required for vat dyeing and permits dyers to increase their output by as much as 30%, were described by A. L. Dubeau, E. G. Fenrich, and G. P. Vincent, of Mathieson Alkali Works, Inc., at a recent meeting of the Philadelphia Section of the American Association of Textile Chemists & Colorists. This process, which entails the use of Textone (sodium chlorite) as the oxidizing agent, is applicable also in sulphur dyeing. An abstract of the paper follows:

When Textone is used to oxidize vat and sulphur dyes, the end product of the reaction is common salt, which is easily washed out; therefore, fewer washings are needed. In addition, there is no danger of dulling the shade; the goods are more absorbent and have a softer hand; and no health hazards are involved. Even the use of acid may be eliminated, as in many cases Textone is preferably used in an alkaline solution.

When an alkaline solution of Textone is used as the oxidizing agent, the general procedure in jig operation is as follows: After the dye on the goods has been reduced to leuco form, the reducing solution is dropped, and the cloth is given from one to four ends in cold water. The amount of Textone that will be required for complete oxidation of the dye depends upon the weight of the cloth, the amount of dye to be oxidized, and the number of washes given the cloth before oxidation. In practice, ½ to 1 lb. covers most conditions.

In making up the oxidizing solution, sufficient sodium bicarbonate is dissolved in the usual amount of water in the jig to keep the final pH of the bath from exceeding 10.0. The amount required will vary with conditions, but from 5 to 20 lb. is generally needed. Then ½ of the Textone to be used is added to the bath. The cloth is given one end in this solution; then the rest of the Textone is added, and the cloth given three more ends. The temperature of the bath should be kept at not less than 140°F. for vat dyes and approximately 130°F. for sulphur dyes. The oxidizing bath is then dropped, and the cloth is given one or two ends in hot water and is shelled up through cold water.

If the goods are to be soaped, the soap or the detergent can be added to the oxidizing bath after the second end. The temperature is brought up to 180°F., and the cloth is given two ends.

The best way to measure out Textone is to make up a stock solution by dissolving the contents of a shipping container, which holds 100 lb., in 50 gal. of water. As each gallon of the stock solution contains 2 lb. of Textone, the required amount can be ladled out as needed, thus eliminating the need of weighing out each charge separately. The bicarbonate is added to the oxidizing bath in the solid form. It, too, can be easily measured out, as a 2-qt. dipper holds about 5 lb.

Should the goods show a mottled effect due to the use of an insufficient amount of the oxidizing agent, the condition can be corrected by adding more Textone to the oxidizing bath.

Under certain circumstances, it may be desirable to use an acid oxidizing solution instead of an alkaline one. In this case, the procedure is the same as that already outlined, except that a solution of approximately the following proportions is used: 50 gal. of water, 2 lb. Textone, and 10 lb. acetic acid (28%). About 3 oz. of tetrasodium pyrophosphate or a similar detergent may also be added to good advantage.

Specific applications of the process are as follows:

Alkaline Solutions

Heavy Twill, 2 yd. per lb.—Fabric from reducing bath is given four ends through cold water. Then, one end in the following solution at 140°F.: ¼ lb. Textone, 5 lb. sodium bicarbonate, 50 gal. water. Another ¼ lb. of Textone is then added to the bath, and fabric given three more ends; then one or two ends through hot water at 180°F.; four ends through soap and soda-ash solution; three ends through hot water; and shell up through cold water.

Challis type spun rayon, 10 yd. per lb.—Fabric impregnated with reduced Indanthrene vat dye is given two ends through cold water. Then, one end in bath at 180°F. and pH of 8.3 to 8.45 containing: ⅛ lb. Textone, 5 lb. sodium bicarbonate, and 25 gal. of water. Then, another ⅛ lb. of Textone is added to the bath, and fabric given three more ends; then two ends through hot water; shell up through cold water.

Twill, 2 yd. per lb.—Fabric impregnated with reduced sulphur dye is given four ends in cold water. Then, one end in following bath at 130°F.: ¼ lb. Textone, 5 lb. sodium bicarbonate, and 50 gal. water. Another ¼ lb. of Textone is then added to the bath, and fabric given three more ends; then four ends through hot water; and pass to soaper.

Acid Solution

Twill, 1.69 yd. per lb.—Fabric impregnated with reduced vat dye is passed without washing, and given three ends in the following bath at 140°F.: 1 lb. Textone, 1½ gal. acetic acid—(28%), and 50 gal. water. Then, wash, and pass to soaper.

Georgia Mill Men Hear Gov. Arnall

GEORGIA COTTON MANUFACTURERS held a half-day convention May 18 at the Atlanta Athletic Club. The convention began with an informal gathering and midday luncheon. Governor Ellis Arnall was guest speaker at the luncheon and immediately following this the business session was conducted in rapid-fire order. Of interest to members was the announcement, by W. H. Hightower, president of Thomaston (Ga.) Cotton Mills and retiring president of the association, that a committee of textile executives of which he is chairman is soliciting funds for the Textile Education Foundation, Inc., an organization to promote and conduct textile education in Georgia. It will have a minimum fund of $500,000, of which $209,000 has been pledged.

Governor Arnall told the manufacturers that he wanted to foster and promote industry in the State and planned to reduce the indebtedness of the State without increasing the tax burden.

T. M. Forbes, executive vice-president of the association, gave a brief summary of activities for the last year. He emphasized the fact that 98.2% of the Georgia mills, or 120 mills representing 3,044,000 spindles, were members of the Cotton Manufacturer's Association of Georgia. Other reports of the business session were the treasurer's annual report by H. Otis Ball, vice-president, Pepperton Cotton Mills, Jackson, Ga.; report of the Textile Foundation, Inc., by W. H. Hightower; traffic committee by N. Barnard Murphy, president Trion (Ga.) Co.; cotton buyer's division by Charles Thompson, Martha Mills, Thomaston, Ga.; resolutions committee by Robert O. Arnold, treasurer, of Covington (Ga.) Mills, and nominating committee by George P. Swift, president, Muscogee Mfg. Co., Columbus.

The following officers and directors were then elected: President, G. I. Parmenter, superintendent Goodyear Clearwater Mills, Atco, Ga.; vice-president, H. O. Ball; executive vice-president, T. M. Forbes, Atlanta, Ga.; treasurer, A. Illges, treasurer and vice-president of Swift Spinning Mills, Columbus, Ga. Directors elected for terms expiring in 1946 are: A. B. Edge, Jr.; N. B. Murphy; George E. Green; J. H. Cheatham, and J. F. Fowler (who was elected to the board to serve the unexpired term of A. Illges).

Left to right: W. N. Banks, chairman of Cotton-Textile Institute; Ellis Arnall, governor of Georgia; Julian T. Hightower, retiring president of Georgia association at convention luncheon.

Left to right: Guy I. Parmenter, newly-elected president of association, Jno. H. Cheatham, a former president; H. O. Ball, newly-elected vice-president.

North Carolina Safety Conference

SAFETY as it affects the cotton-textile industry, and other industries of the State of North Carolina was the subject of both the general and clinical study at the North Carolina State-Wide Industrial Conference, held in Charlotte, May 20 and 21. Speakers on the second day included E. A. Smythe, III, president, Balfour (N. C.) Mills, and president of the North Carolina Cotton Manufacturer's Association. At the meeting of the textile section, N. Weldon Rogers, general superintendent Chadwick-Hoskins Co., presided. Occupational disease problems were discussed by E. Ward Thompson, American Mutual Insurance Co. C. J. Hyslup, safety director, of Chatham Mfg. Co., Elkin, N. C., emphasized the fact that safety records properly designed and faithfully kept can furnish the basic data for all kinds of comparisons that are valuable to the plant safety engineer and management. E. A. Winkler, assistant professor of Electrical Engineering, State College, Raleigh, explained the theory and application of three-dimensional seeing. (A detailed discussion of three-dimensional painting was given in TEXTILE WORLD, May, 1943).

Panel discussions of subjects of interest to textile men were led by S. F. Kimball, district engineer, Liberty Mutual Insurance Co., Charlotte. "Handling Objects," was discussed by Marshall Dilling of A. M. Smyre Mfg. Co., Gastonia, N. C., who said that the character of labor used for handling materials resulted in a high accident rate, and that these people must be further educated as to the hazards of the jobs they have. David A. Rae, safety engineer, Eagle Indemnity Co., Charlotte, stressed the point that by starting right, safety and medical records are easier to keep, and that the proper follow-up of such records shows how to eliminate causes of accidents and sickness. H. E. Williams, safety engineer, Marshall Field & Co., Spray, N. C., brought out that idleness can be reduced by helping the employee to like his work, and watching his health.

B. C. Hall, Jr., Hanes Hosiery Mills, Winston-Salem, N. C., expanded on, "Should the Mill Safety Program Include Home Accidents Prevention?".

Mildewproofing Army Fabrics

Compounds and application methods to meet Quartermaster Depot requirements

By JOSEPH E. GOODAVAGE
1st Lt. U. S. Army Quartermaster Corp.

DAMAGE in the tropical zones to materials containing cotton is becoming a major problem, due to the destructive action of fungi or molds, and it is necessary that all such equipment be properly protected by being made mildew resistant. In this discussion the terms "mold" and "fungus" will be used interchangeably. The ability of certain fungi to convert the carbon of cellulose into a readily assimilable food can result in the complete destruction of cotton materials. Under tropical conditions, this can take place in a comparatively short time—from 5 to 7 days—especially if the cotton material is in contact with the soil. In addition to the cellulose-destroying types, it is just as important to protect cotton materials from surface-growing types of fungi, which discolor the cotton material and impart to it an objectionable musty odor.

For the complete protection against mildew, it is necessary that the environment of the fabric is such that it inhibits the growth of *Chaetomium Globosum, Matarrizium, Aspergillus,* and *Pencillium*—the first two being active cellulose destroyers, the other two the surface-growing types. To meet these requirements, the mildew inhibitor must be more than just an ordinary antiseptic; it must be a compound which is toxic to fungi.

At present, the fungicides listed in the accompanying table are being applied on cotton materials to meet the mildewproofing requirements of the Philadelphia Quartermaster Depot. All these, when properly applied, meet the performance requirements. Some are more durable than others, but, on account of certain inherent characteristics, are limited in use.

Copper naphthenate is a fungicide whose effectiveness to both "rot" and "mildew" resistance is so outstanding that it is often used as the yardstick in evaluating the efficacy of other fungicides. Unfortunately, since it imparts color and has a rather penetrating odor, its application at the present time at the Philadelphia Quartermaster Depot is limited to such items as webbing and rope. Zinc naphthenate, which is also an effective fungicide, but not to the extent of the copper compound, has little color of its own, but has about the same characteristic odor. Both the zinc and the copper naphthenate can be compounded with coal tar residues and pigments to yield olive-drab shades of good fastness to weathering, especially when used in conjunction with a water repellent and applied by the solvent method. Water emulsions of both the copper and the zinc compounds can be obtained.

A number of phenolic derivatives are also efficient fungicides, but, from the standpoint of durability, they do not compare with the naphthenic derivatives in the burial test. They meet the requirements of the accelerated mildew test when used in conjunction with a water repellent, which aids in retaining them on the fabric. One of these compounds is penta-chlor-phenol. Unfortunately, this compound, although it inhibits the growth of cellulose-destroying molds and the surface-type molds, is classified as an irritant. Therefore, it is limited in its application to materials other than those that come into "intimate" contact with the body.

The dihydroxy-dichlor-diphenylmethane compound is outstanding as a phenolic derivative in that it is an efficient fungicide, inhibiting all types of mold growth. It is considered non-toxic and, therefore, can be applied to all types of cotton materials, including those coming into "intimate" contact with the body.

Ortho-phenyl-phenol, which is possibly the lowest in price of all the fungicides, is also an effective fungicide and is non-toxic; but, unfortunately, from the practical standpoint of application, it has been found that it interferes with water repellency to the extent that it is readily removed by leaching, and more so when subjected to simulated rain conditions. If a way could be found to anchor this material in the fabric so that it would remain there, a wide application could be found for it.

The cuprammonium compounds, especially the process in which the fabric is treated with ammoniacal solution of copper oxide, require close control on fine fabrics, in order to overcome the stiffening, glazing, and actual weakening and loss of tear strength of the fabric. Although this process causes a chemical combination between the cellulose fibers and shows good resistance to the burial test and inhibition to the cellulose-destroying molds, experiments have shown that common, ordinary molds, such as the *Pencillium* type, can grow on such treated materials, when finishing agents are added, such as oils, etc. Its application is limited princi-

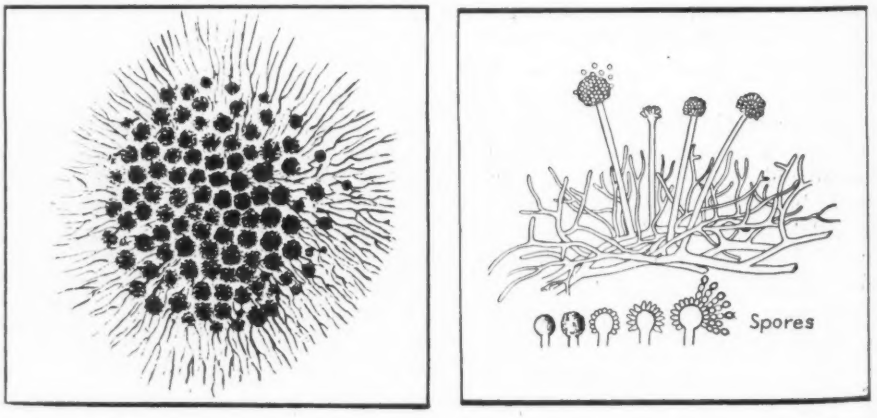


Fig. 1a. Colony of *Aspergillus*, a surface-growing type of fungus, as shown under the microscope. **Fig. 1b.** Colony of *Aspergillus* showing mycelium and spore clusters.

Abstract of paper delivered April 30, at a meeting of the Philadelphia Section, American Association of Textile Chemists & Colorists.

pally to materials that are subjected to burial or come in contact with the soil. The cuprammonium products impart color; and for this reason, their application is somewhat limited. Copper oleate also imparts color and supports surface-growing molds, although it resists satisfactorily the cellulose-destroying types.

Of the mercury compounds, the outstanding one is phenyl mercury trinitriloethanol lactate, which is considered non-toxic when applied to the extent of 0.4% on the fabric.

The quaternary amine compounds, of which there are a number available as antiseptics and fungicides, are among the latest to be developed. They are efficient compounds, and in some cases have been shown to have substantive properties capable of resisting the spray and leaching tests, being colorless and water soluble, although in some cases the solubility is too great, necessitating an aftertreatment to decrease their solubility in order to render them more durable.

Amino-guiacol benzo-thiazole iminourea is wholly of an organic nature, with no metal present, and is compatible with water repellents. It is being applied to materials, both animal and vegetable types, indicating that it is an efficient bactericide and a fungicide.

APPLICATION OF FUNGICIDES: The following methods are in use for the application of fungicides:

1. *Solvent Method.* In this method the fungicide, which is usually a phenolic derivative or a naphthenate, is applied by means of an organic solvent, such as alcohol, or a mixture of dry-cleaning solvents, together with a solvent-type repellent. This method yields the most durable type of treatment.

2. *Precipitation.* By this method, the water-soluble salt of the fungicide is first applied to the fabric and, by passing into an acid bath, the insoluble form of the fungicide is precipitated in the fabric. This second operation is usually carried out in the acidified water-repellent solution made acid with acetic acid. When properly applied by this method, the fungicide treatment is next in durability to that of the solvent method.

3. *Single-Bath Method.* From the viewpoint of application, this is the simplest and least costly method of applying fungicides and consists of applying the fungicide and the water repellent simultaneously in one operation. This is carried out by making a fine suspension of the insoluble fungicide in the water repellent and passing the cloth through a diluted solution of such a preparation. The durability of such a treatment depends to a large extent on the character of the water repellent and also on the degree of dispersion and the particle size of the dispersed fungicide.

Fungicides employed on cotton materials to meet mildewproofing requirements of Philadelphia Quartermaster Depot.

- Ortho-phenyl-phenol
- 2-chlor-o-phenyl
- Penta-chlor-phenol
- Tetra-brom-o-cresol
- Salicylanilide
- 2,-2-dihydroxy-5,5-dichlor-diphenyl-methane
- Copper naphthenate
- Zinc naphthenate
- Zinc dimethyl dithio-carbamate
- Copper oleate
- Cuprammonium hydroxide
- Cuprammonium fluoride
- Phenyl mercury acetate
- Phenyl mercury oleate
- Phenyl mercury trinitriloethanol lactate
- Alkyl dimethyl benzyl ammonium salts
- Cetyl pyridinium chloride
- Amino-guiacol benzo-thiazole iminourea

PERFORMANCE TEST. Materials which are required by the Philadelphia Quartermaster Depot to be water repellent and mildew resistant are subjected to a performance test. This consists of: (1.) a modifying test; and (2.) the accelerated mildew test.

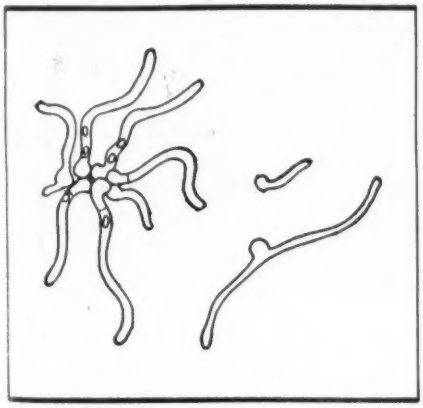
The modifying test, depending upon the type of material, is either a leaching test or a spray test.

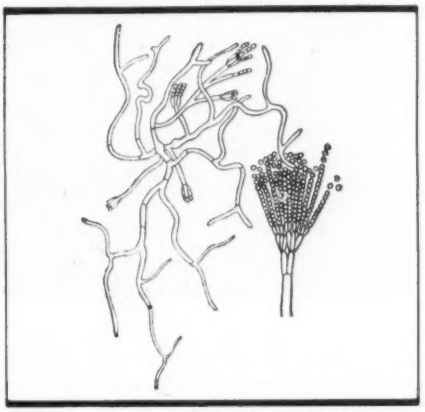
In the leaching test a sample of netting 6x12 in. is immersed in 1 gal. of water at 65°F.; the flow of water is regulated so as to change the water three times over a period of 24 hr., after which the sample is sterilized and then inoculated for the accelerated mildew test. In the spray test a sample is mounted on a board placed at a 45° angle and sprayed for ½ hr. with water from a spray nozzle placed vertically above the sample at a distance of 18 in. from the center of the sample.

For each sample submitted one portion is inoculated as received; another portion is sterilized and inoculated; and a third portion is subjected to a modifying test, either the leaching or the spray test, then sterilized and inoculated. In addition, a control sample of plain cotton fabric is inoculated. All four samples are then incubated in a special room where a temperature of 80°F. is maintained with a relative humidity of 85%.

The organism used in the test is *Chaetomium Globosum* and the period of incubation is 14 days. If no growth is visible after 14 days, the sample is considered as passing the test. In case of a disagreement, breaking strength tests are carried out on exposed and unexposed samples.

It is customary for a contractor before starting production to submit a sample of mildew-resistant fabric. After the fabric has been subjected to the performance test, the contractor is notified of the outcome. If the outcome of the test is satisfactory and the treatment acceptable to the Depot, it is then understood that the contractor shall use the same mildew-inhibiting process during the life of his contract. If for any reason a change is to be considered, he must notify the Depot. It is also a requirement of the Depot that the nature of the fungicide employed and the approximate amount retained in the fabric be made known when the sample is submitted.





Illustrations reproduced by courtesy Ginn & Co., New York, from "Bacteria, Yeasts, and Molds in the Home," by Conn.

Fig. 2a. Sprouting of the spores of *Penicillium*. **Fig. 2b.** Growth from two spores of *Penicillium* two days later than in Fig. 2a.; at right is a cluster of spores of an older colony.

MANUAL OF MILITARY FABRICS

Part V—8.5-oz. Herringbone Twill

Manufacturing and processing details for coveralls covered by Army Specification No. 6-261 and Amendment No. 1

To meet the need by textile mills for complete data on gray constructions, yarn organizations, weaving and finishing of fabrics required in large quantities for military use, TEXTILE WORLD, with the approval of officers of the Quartermaster Corps, began publication in the February issue of a Manual of Military Fabrics. The mill organizations and other manufacturing and processing data were furnished through the cooperation of textile mills which are producing this fabric under Government contract. It is recognized that other plants having different types of equipment will have to make some modifications in the organizations, formulas, and procedures presented. Accordingly, these data should be regarded not as "standards" which must be followed, but as guides to the more efficient production of this fabric. Parts previously published are as follows: Part I, 5-oz. Poplin Type II. P.D.Q. No. 1, February; Part II, 6-oz. Cotton Twill, Army Specification 6-311, March; Part III, 8.2-oz. Cotton Twill, Type I, Army Specification, 6-201B, April; Part IV, 8.2-oz. Cotton Twill, Type II, Army Specification 6-201B, May.

FOR USE IN COMBAT COVERALLS and work suits, the Philadelphia Quartermaster Depot requires large quantities of 8.5-oz. herringbone twill covered in Army Specification No. 6-261 and Amendment No. 1. Whereas the original specification called for use of combed yarn in the warp, the amendment permits use of carded yarns in both warp and filling. Recently invitations for bids have been issued for 169,000,000 sq. yd. of herringbone twill, and mills are urged to consider the feasibility of conversion to or increasing production of this fabric. Below is a brief abstract of Specification No. 6-261 as amended. This is followed by detailed information—not given in the specification or invitation—on the manufacture and processing of this fabric.

Abstract of Specification

Yarns: Cotton used in the manufacture of the yarn shall be of suitable length of staple and grade to meet the specification and shall be thoroughly cleaned, well carded, and evenly spun. Warp and filling yarn shall be single.

Color: Unless otherwise specified in the invitation for bids, the herringbone twill shall be dyed with vat colors to give an approved shade of olive drab. *Fastness to Weather*—Samples to be exposed for 10, 20, or 30 days. *Fastness to Laundering*—Tests to be conducted by washing procedure as outlined in paragraph 1 and 2 of Section XIV, Federal Specification CCC-T-191a. *Fastness to Laundering Agents Containing Active Chlorine*—Tests shall be conducted as outlined in invitation for bids. *Physical Requirements*—Width shall be 32 in. minimum, 48 in. maximum, weight (minimum per sq. yd.) 8.5 oz.; ends and picks minimum 72x46; breaking strength minimum 125 lb. warp, 85 lb. filling. Weave shall be a three-harness herringbone twill 2 up, 1 down, 12 ends to the right, 12 to the left. The cloth shall be closely singed, desized, scoured before dyeing, and mercerized. Finishing or loading materials to increase the weight or strength is prohibited. Shrinkage shall not be more than 1% in either direction of warp or the filling when subjected to tests for shrinkage in laundering outlined in Section XIV, Federal Specification CCC-T-191a.

Tests

The methods of testing described in Federal Specification CCC-T-191a, wherever applicable shall be followed. Tests for fastness to bleaching as revised are outlined in requests for bids.

Manufacturing Details

Yarn manufacture—Yarns are made on standard carded-yarn equipment without special adjustment in speeds and feeds of the pickers through to the finished yarn. Clean stock is necessary.

Opening, Blending, Picking, and Carding Organizations (designated No. 5 in every case), Drawing Organization No. 4, and Roving Organization No. 7 can be the same for warp and filling. Spinning Organization No. 8 is used for the 10¼s warp yarn and Spinning Organization No. 9 is used for the 10s filling yarn.

Olive Drab No. 7 for the Army

Photo Section, Philadelphia Quartermaster Corps

Recent procurements of herringbone twill made by Philadelphia Quartermaster Depot have been specifying OD No. 7. It is believed that the Army intends eventually to procure most combat equipment in this shade, as it has been found in service to offer excellent camouflage properties. Tenting ducks and other equipage are also being procured in this shade by the Jeffersonville Quartermaster Depot. Contrast in appearance between new OD No. 7 and old OD No. 8 is shown in the accompanying photograph; herringbone twill dyed OD No. 7 is at left.

Fabric manufacture—Keep a loose top shed as on a twill or drill to get good coverage on face of fabric. Time loom as for regular 3-harness twills. Weight of fabric may require a drag roll. Tension warps to take picks well.

Looms suitable for this fabric include the Draper X-2 Model with Roper let-off and Stafford thread cutter, run at approximately 192 r.p.m.; Draper Models E, K, XK, and XD; attachments recommended are Stafford thread cutter, Midget feeler, and Nutting bar take-up; loom speeds require adjustment to fabric—especially if high-production fabric was formerly run on them; Crompton & Knowles Models C-3, C-4, C-5, and C-6 without changes in equipment; loom speeds can be adjusted to secure maximum production of first-quality cloth.

Finishing Details

Scouring and Mercerizing

Follow procedure outlined in Part II of this Manual (TEXTILE WORLD, March 1943).

Vat Dyeing

Following are two approximate formulas for producing the Olive Drab No. 7 shade specified in recent invitations to bid.

Vat Dye Formula No. 6

Olive Drab No. 7—Pigment Pad Method

Dye	Oz. per gal.
Vat Khaki 2G (Pr. 122)	6.91
Vat Olive R (C.I. 1150)	7.44
Vat Olive Green BN	0.80

Vat Dye Formula No. 7

Olive Drab No. 7—Pigment Pad Method

Dye	Oz. per gal.
Vat Brown R (C.I. 1151)	5.84
Vat Olive R (C.I. 1150)	7.97
Vat Olive Green BN	3.98

Follow dyeing method outlined in Part II of this manual, with these modifications:

a. Increase amount of caustic soda and sodium hydrosulphite for reduction to 12 lb. of each.

b. After oxidizing and rinsing, soap 4 ends at boil with 3 lb. chip soap and 3 lb. soda ash to 100 gal.; and give final rinse of 4 ends in hot water.

Finishing

Preshrink on Sanforizing machine or other preshrinking equipment to give residual shrinkage of not more than 1% in either the direction of the warp or the filling when subjected to tests for shrinkage in laundering outlined in Federal Specification CCC-T-191a.

Inspection and Folding

1. Inspect
2. Fold in continuous pieces of not less than 50 yd., using 1-yd. folds.
3. Ticket, pack, and mark according to instructions in invitation for bids.

Mill Organizations for 8.5 oz. Herringbone Twill

This 8.5-oz. herringbone twill is covered by Army Specification No. 6-261, as amended.

Opening and Blending Organization No. 5

Grade—Middling
Staple—1⅛ in.
Mix—Load from 20 bales
Processes—Hoppers, Superior cleaner, and tandem Centrif-Air machines

Picking Organization No. 5
13.5-oz.. lap

One process

Type beaters:
2-blade back
2-blade Kirshner Front

Beater speeds:
1174 r.p.m. back
1130 r.p.m. front

Carding Organization No. 5
58-gr. sliver

458 r.p.m. lickerin
172 r.p.m. cylinder
11 r.p.m. doffer
3⅛ in. per min. flats
50 in. dia. cylinder
27 in. dia. doffer
110 cylinder wire
100 doffer wire
110 flat wire
99.88 draft (waste deducted)
15 lb. per hr. production
5.3% waste

Main settings:
0.010 in. feed plate to lickerin
0.007 in. lickerin to cyl.
0.007 in. doffer to cyl.
0.010 in. flats to cyl. Points—1-2-3 (front)
0.010 in. flats to cyl. Points—4-5 (back)
0.032 in. front plate (top)
0.034 in. back plate (bottom)
0.022 in. percentage plate (front plate bottom)

Drawing Organization No. 4
60-gr. sliver

264 r.p.m. F. R.
1⅛ in. dia. F. R.
5.8 draft

Type rolls:
Top: cork
Bottom: metallic

Roving Organization No. 7
.92 h.r.

Slubbers
6.4 draft
160 F. R. speed
1⅞ in. dia. F. R.
1.12 twist

Spinning Organization No. 8
10¼s yarn (warp)

.92 roving-single
11.14 draft
165 F. R. speed
1 in. dia. F. R.
4.75 twist multiple
Z direction of twist
20.32 gr. traveler (weight of 10)
2¼ in. ring size

Spinning Organization No. 9
10s yarn (filling)

.92 roving-single
10.87 draft
178 F. R. speed
1 in. dia. F. R.
3.60 twist multiple
Z direction of twist
30.4 gr. traveler (weight 10)
1⅞ in. ring size
8¾ in. package-quill
1.73 oz. per quill
7 yd. bunch
1⅞ in. to 2 in. taper

Winding Organization No. 2

Cheese type pkg.
2.4 lb. pkg.

Warping Organization No. 5

10,000 yd. length set
7 beams to set
403 ends per beam
Barber Colman Creel—468 end capacity

Slashing Organization No. 5

40 yd. per min. slasher
12% size added
Size formula
280 lb. cornstarch
32 lb. softener
320 gal. finished

Drawing-In and Weaving Organization No. 5

8.5-oz. herringbone; 36 in. finished width

Drawing-in
No. harness 3
931 ends per harness
Duplex type harness
12 in. length heddle
Duplex type heddle
Electrical type 0.008 in. thick drop wire

Weaving
Gray: Oz. per linear yd. 10.58; yd. lb. 1.51; width 40¼ in.
Basis: 9.46 oz.; 36 in.
Warp ends in. 70; picks in. 48
Percent warp 63.33, percent filling 36.67
Selv. threads 10s single
Ends selv. 28; Selv. draw tape
Reed D/in. 22.09; Ends/dent 3
Reed spread 42.46 in. No. harness 3
Pattern or straight draw—pattern
Take-up warp 12.00%; take-up fill. 5.11%

Cloth Room Organization No. 5

No. Inspections—One
Type Inspections—Table
No. sides Burled—One side
No. Bushings—One
No. runs Napper—None
Type Grading—Table
Folding—Ship in Fold
Length folds—1 yd.
Bales or rolls—Bales
Fin. Yd. per cut—40 yd. up
Total yd. per pkg.—800

The licker-in must be kept in proper adjustment to the feed rolls and its garnett wire sharp. Foreign particles passing through the cards sometimes dull and even break the garnett wire if proper care has not been exercised in their removal during previous processing operations. Regular inspection should be made at definite intervals of all card clothing.

MAINTENANCE in Woolen Mills

Reveals company machine shop plays important part in keeping equipment in operation

By FRANCIS A. WESTBROOK

RESTRICTIONS ON NEW MACHINERY PURCHASES ARE SEVERE. Demands for continuous high-speed production of military fabrics has made machinery maintenance of foremost importance to mill executives and superintendents. Although replacement parts may be had, the possible delays encountered in receiving such parts make it advisable for each mill to give special care to maintenance in the hope of preventing breakdowns, hence eliminating loss of productive capacity.

An example of wool mill maintenance is illustrated in the program conducted by one New England plant. Inspections are continuously made of three items, these being spinning frames, mules, and warp preparation equipment.

A full-time man on each shift has charge of these inspections and makes necessary adjustments to keep wear at a minimum. He also handles all machine troubles when they arise. Breakdowns are avoided, in so far as possible, by making replacement of worn parts before the wear becomes serious, and before the parts are so worn that they cannot be renewed or repaired in the company repair shop. This practice is especially beneficial today.

To facilitate replacement, those parts which most frequently need attention are carried in stock so that the replacements may be made quickly and easily. The machine shop makes many of the emergency repairs so as to keep the machines in operation until needed parts arrive from the machine builders.

As most of the machine difficulties requiring maintenance are due to ordinary wear, the operatives clean and lubricate their machines every 8 hr. in an effort to keep them in good mechanical condition.

Intermediate feeds on cards must be properly adjusted if accurate feed control is to be obtained during carding. Link drives operating parts of the feed must be cleaned and oiled frequently to prevent premature wear.

ANOTHER NEW ENGLAND WOOLEN MILL has a somewhat different set-up for maintenance procedure. This company does its spinning on mules. All

inspection is handled by the overseer, who is expected to take care of his machines and see that they are kept clean and in good working order. Being a small mill, such a procedure is possible.

On mules the chief trouble that arises is with uneven bobbins resulting from loose rim bands. Poorly built bobbins largely are the fault of the spinner in looking after his wires. Bent spindles and wear of collar boards cause the spindles to wobble. These troubles are serious, as spindles out of true cause bad spinning. Rim bands, especially, need constant watching. Running spindles in sections rather than in individual bands helps materially in this respect.

According to one of the officials of this mill, except for accidents, there has been little stoppage of machines. Overseers who are on their jobs locate troubles in time to prevent breakdowns. In a large plant the overseers would hardly have time to do inspection work, but in smaller plants this practice is quite feasible. Keeping machines in first-class operating condition is a must in wartime, even more important than in peace times. First-class equipment and well running stock make high production possible.

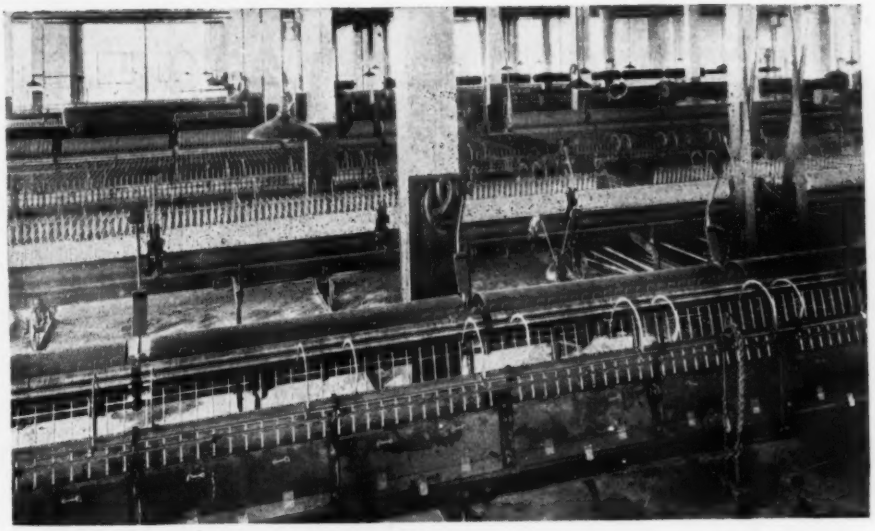
Little mechanical trouble is encountered with warping machinery. Poor work, such as crossed threads, is caused by carelessness of the operator. Each spinner and warper oils his own machine each morning and cleans it at the end of the day. Ordinary spare parts are kept in stock, broken castings are welded in the plant shop, and all repairs are made on the job.

The company has a repair shop which is adequate for handling all but the very big jobs.

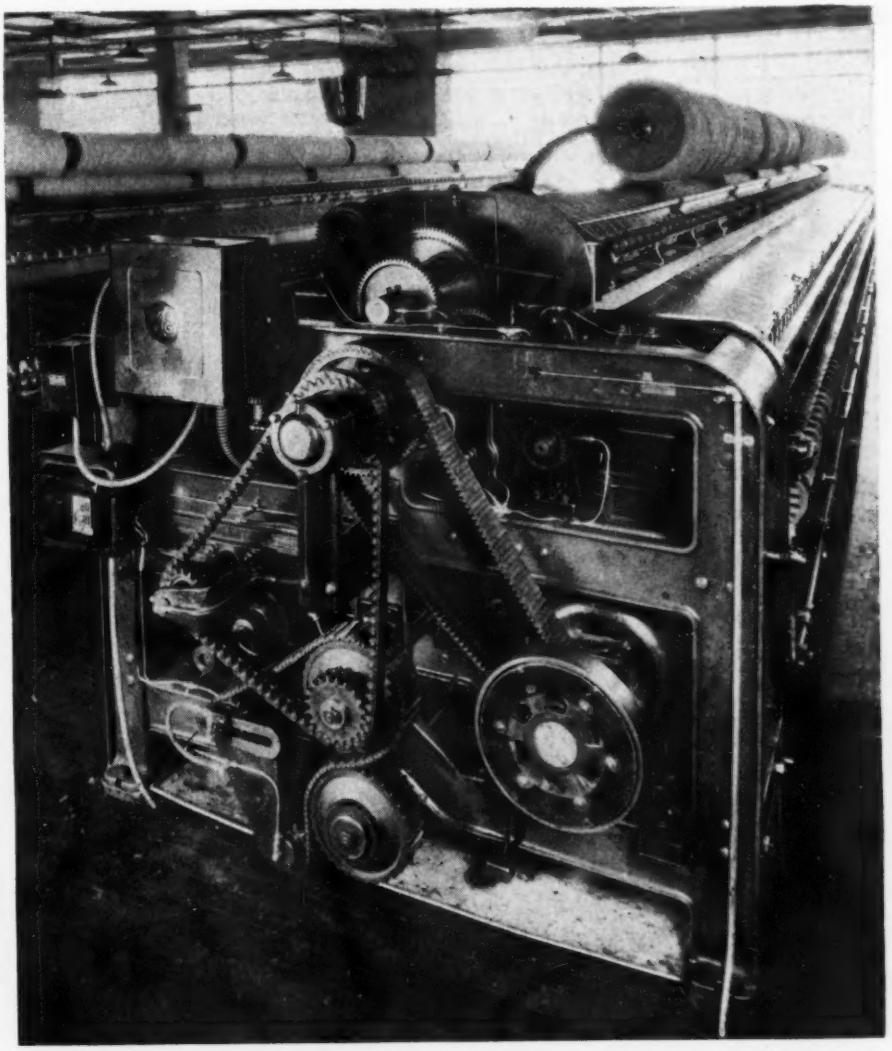
UPKEEP OF SPINNING FRAMES in a third mill, follows the manufacturers' recommendations. Spindles are oiled every two weeks. Plain bearings are oiled every day, and the fluted roll bearings twice a day. The daily and twice-daily lubrications are attended to by the respective operators, and bi-monthly lubrication is handled by the maintenance crew operating on a carefully planned and checked schedule.

Cleaning of the deckboards of the spinning frames is usually done every other day by the operators, using a felt-covered board which is pushed by hand from one end of the frame to the other.

The frequency of cleaning varies somewhat with the stock being run. The rolls are generally cleaned daily. Ring and spindle rails are cleaned twice a day, and dust and fly brushed from the entire frame every day.



Mule spinning demands that the guide wires be kept true and the spindles straight. In many larger mills maintenance crews make a systematic check of such items, whereas smaller mills often leave this work for the overseer to handle. Bands must be given careful attention, as variation in tension will cause an appreciable difference in spindle speeds.



Spinning frames should be lubricated in accordance with manufacturers' specifications. A centralized system of lubrication is of great assistance as it assures that all important bearings receive the correct amount of oil. Burned-out bearings are always a maintenance problem and frequently cause long and expensive delays in production.

Producing Aralac-Wool Blends

Only minor modifications of regular woolen or worsted methods are needed

EXPERIENCE in manufacturing blends of Aralac and wool has shown that only a few minor changes in the usual woolen and worsted techniques are necessary. However, these modifications are important if best results are to be obtained.

For use with wool, Aralac is produced in three sizes or grades, designated as 50s, 60s, and 70s, corresponding in micron diameters to these grades of wool. It can be supplied in staple lengths ranging from ½ in. to 6 in. in ¼ in. increments.

The grade and staple length to be used in a blended yarn are determined by the grade and staple length of the fibers with which it is to be used in combination. Thus, if a blend is to be made on the woolen system, the Aralac is procured in a much shorter staple length than if a worsted yarn is to be produced. Some spinners are using Aralac cut to 3-in. staple length for blending with short, coarse wool fibers to improve their carding and spinning properties and to permit production of finer run yarns.

When used with wools of high-felting properties, Aralac increases the felting propensities of the fabrics, but Aralac by itself has no felting property. Neither has it any tendency to felt when blended with other nonfelting fibers, such as low-grade straight wools or re-worked wools, or with viscose, acetate, or cotton. It withstands carbonizing, and hence can be employed in fabrics which are to be piece carbonized.

Typical of the woolen and worsted products produced from Aralac-wool blends are dress goods, women's suitings and coatings, blankets, sweaters, socks, and anklets.

WOOLEN SYSTEM. Processing of Aralac as a blend fiber on the woolen system requires only the usual machinery employed in regular woolen production. A combination blend is laid down at the picker in the same manner and with the same precautions as are necessary in the blending of other fibers. Emulsion added to the blend can be the same as that used with wool and wool substitutes, provided the emulsion is readily soluble in lukewarm water. The amount of emulsion used depends on the character of the blended stock being oiled.

Although Aralac fiber is of uniform acidity and grade, it is advisable as a precaution to lay the blend from three to five bales of Aralac fiber, using the same quantity from each bale in each blended lot. After the stock is properly and uniformly laid down at the picker, the picking, carding, and spinning operations are no different from those used with either straight wool or with other blends.

If the filling when wound onto the loom bobbins is too kinky for satisfactory weaving, and it is necessary to correct this kinky condition, the yarn must not be steamed or brought into direct contact with moisture. Either of these treatments may affect the Aralac and produce a barry appearance in the finished goods. It is advisable to spin the filling with only sufficient twist to obtain the minimum strength required for satisfactory weaving. If the filling yarn is then too kinky, the safest method of conditioning is to store the filling yarn for a few hours, or in a conditioning inclosure with high humidity for a sufficient time to set the yarn properly.

On this machine Aralac is cut to the desired staple lengths for blending on either the woolen or worsted system.

No changes from regular practice are required in weaving. In scouring and fulling fabrics containing Aralac, only soaps low in alkalinity should be used, and the temperature of the bath should not exceed 90°F.

Dyeing of Aralac-wool blends calls for some modification of the usual wool dyeing operation. Several of the dye manufacturers have worked on this problem and are in a position to give valuable advice and suggestions.

WORSTED SYSTEM. To blend Aralac with worsted, the Aralac staple is first combed into top, blending actually taking place at the drawing operations. There has also been some experimenting in textile plants with Aralac tow on the "tow to top" system, with the thought of eliminating a number of processing operations.

Aralac fiber can be combed into top equally well on the French and on the Bradford systems. When combed on the French system, the staple length is usually 4 in., whereas on the Bradford system the staple length is 5 or 5½ in., according to grade of wool fiber used. When blending combed Aralac top with worsted top on either the French or Bradford systems, the blend is usually started in the first gilling operation of drawing. By varying the number of ends of Aralac top, the percentage blend is controlled. The percentage of Aralac in the blend usually ranges from 25 to 40%. Blends of Aralac, wool, and rayon staple fiber are being produced —generally with ⅓ Aralac, ⅓ wool, and ⅓ rayon staple.

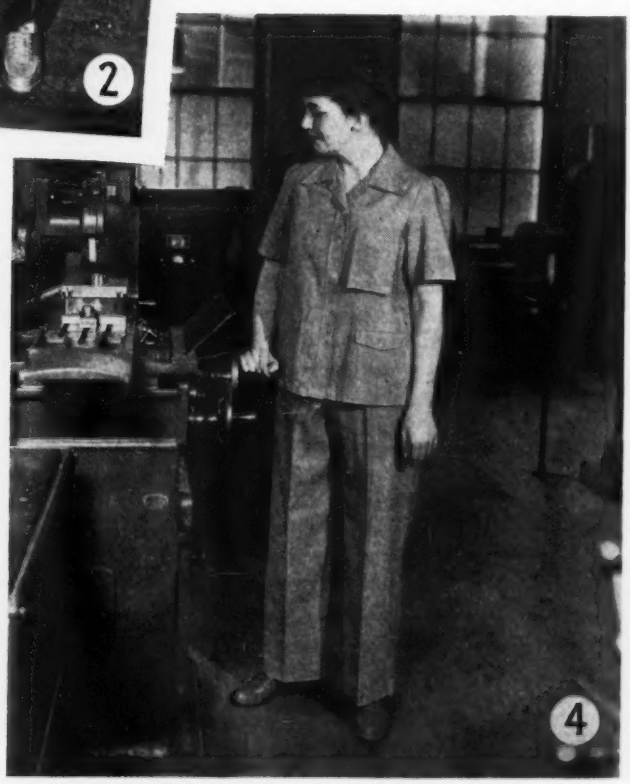
From the gilling, the blended sliver is processed through to spun yarn in the same manner as is straight worsted. No mechanical changes in equipment or in twist or draft are required, other than those ordinarily made for corresponding grade or staple length of worsted. Weaving is the same as with 100% worsted, except for the conditioning of the filling yarn to eliminate kinking—and this is the same as outlined for woolen filling.

Clothing for Women in Men's Jobs

The wearing of special work clothing that is safe and comfortable, has become an important part of women's broader share in industrial work. The coverall, the two-piece slack suit, the overall and the jumper dress are the four items out of which practically any industrial clothing problem for women can be met. Several elements of design are considered essential—covered buttons for working around machinery, snug fit at ankle whether by cut or button fastening, long or short sleeves as dictated by the work, no frills.

In most textile mill departments, especially on those jobs where the woman now wears her regular clothes to work, the jumper dress would provide comfort and save better clothing from wear and tear. Scarcity of fabrics makes both fabric and garment manufacturers discourage any further uniforming of workers, but suitable work clothes are in sufficient supply in usual retail channels to meet the demand of those whose jobs require special dress.

1. The one-piece coverall of herringbone twill, with safety features of concealed buttons, button-in ankle, close fitting pockets, snug fit at wrists. **2.** Bib-top overall of heavy denim with blouse or sweater underneath. Blouse shown has epaulettes to prevent overall straps from slipping off shoulder. **3.** Jumper dress of chambray for the lighter industrial jobs. **4.** Two-piece coverall of sports denim. The shirt being worn outside cuts emphasis on hips and is favored by larger women. —The four garments shown are all of Sanforized fabrics.



Hints on Weaving Nylon Fabrics

Digest of recently published data of permanent reference value to mill men

TODAY Nylon is being used practically 100% for military purposes, and many of the techniques employed in production of Nylon fabrics are regarded as military secrets. For that reason, little has been published on handling Nylon in weaving mills. On the other hand, some information of a non-military-secret nature on winding, sizing, quilling, weaving, etc., has appeared in recent months in manufacturer's bulletins and in British textile publications. Following is a compilation from those scattered sources of previously published data which should be of immediate assistance to mills which are now weaving Nylon fabrics and of permanent reference value to those mills which are making post-war plans for production of Nylon fabrics for civilian use.

WINDING — Yarn tension, static electricity, and the ability of the yarn to cut metal and porcelain are problems encountered in winding Nylon yarns. These problems may be overcome in most instances and the yarn wound successfully on pineapple cones, a type of cone found to be best suited for Nylon. Most winders may have attachments added to them which permit this type of cone to be produced.

Taking the problems in order, tension must be held at a minimum, otherwise unevenness and tight ends will appear in the fabric after it is woven. Unevenness will not show-up until after weaving and little can be done to correct such a condition. Winding speeds of from 1200 to 1250 r.p.m. have been found to be about the maximum. Greater speeds create excessive yarn tension. This low speed keeps static electricity at a minimum. An initial tension of from 4 to 6 grams is recommended at the start, gradually diminishing to no tension. Frictional contact should register tension between 2 to 4 grams. Nylon of low twist should be coned at about 4 grams tension from start to finish. Tension caused by frictional contact should run from 2 to 3 grams. Tensometer readings are best taken between the breakage lever and the back of the traverse frame.

The pressure roll is usually adjusted for a heavy pressure of 12 to 14 oz. for a 12-oz. cone at the start and diminishing to 4 to 6 oz. at the end of the run. A heavy pressure is required to wind a firm pineapple cone. Pressure-roll measurements may best be made with a gage hook provided for this purpose by the manufacturers of winding machines.

Winds of 3¼ or 4 may be used, but in most instances 4 winds have been found to produce the best cone. A standard 5-in. traverse cam is suitable for 5 to 6 in. builds.

Static electricity in Nylon has caused many difficulties in winding. In fact, if means of controlling it were not available, Nylon could not be wound efficiently. Lubrication and humidity are the two factors that keep static under control.

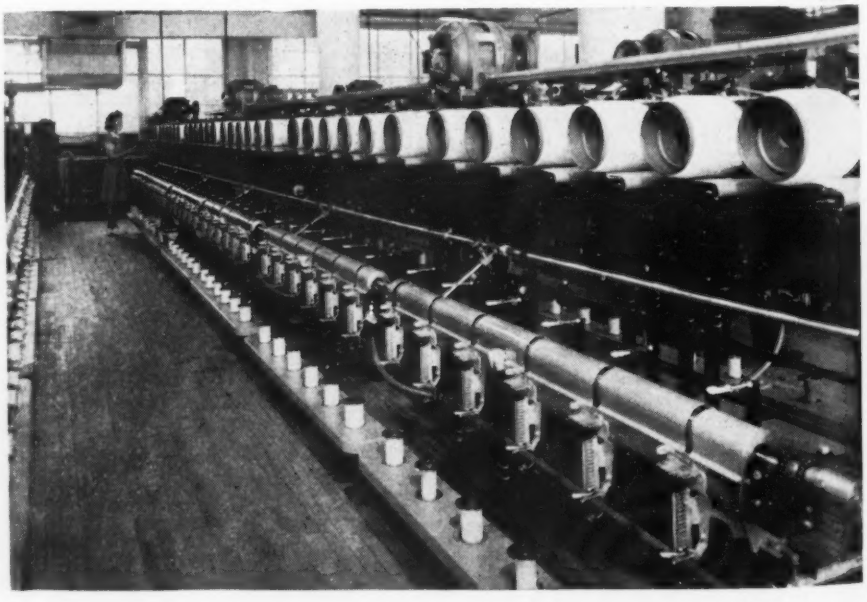
Front line-immersion rolls are usually attached to winders for lubricating. Aside from controlling static, lubrication also tends to lessen tension. Sometimes sizing is used to control static.

The importance of correct humidity control cannot be over-emphasized for winding and for weaving. High humidities in processing rooms are desirable as the yarn is much more flexible. A relative humidity of at least 65% assists in obtaining uniform control of yarn during the winding operation.

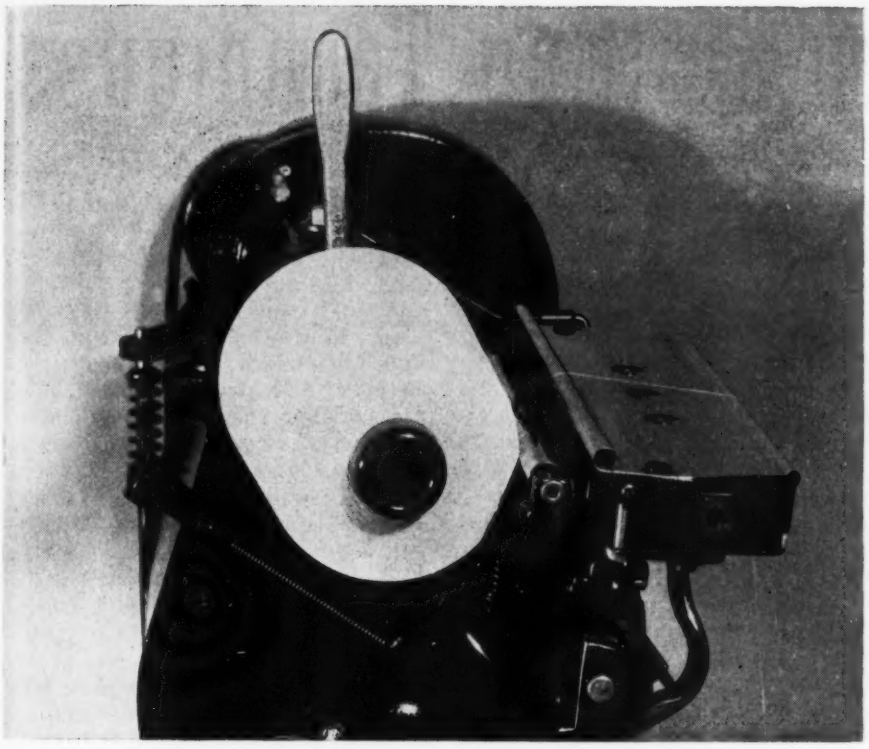
Nylon, because of its natural characteristics, tends to regain its initial length if stretched; that is, if excessive tension is applied. This action, however, takes place over a period of time. Whenever yarn is over-tensioned in processing, it should be allowed to stand in a highly humidified room for 24 hr. before again processing. In this time the yarn will regain its original set, the high relative humidity helping by making the yarn flexible.

Cutting of guides is partially eliminated by lubrication of the yarn and the choice of suitable yarn sizes. Guides should be inspected frequently and kept in good condition. Any extensive change in yarn denier may require that new guides be used if the old ones are worn. Metal guides usually are preferred to those of porcelain and glass, as less static is generated.

SIZING — Warp yarns of Nylon are sized, as are frequently filling yarns. The sizing operation is not for increasing the strength of Nylon, as is the purpose of this operation on other fibers, but is to protect the yarn from cutting heddles and other parts during weaving and to control static electricity.



Machine for single-end sizing of Nylon yarn.



Attachment which permits Nylon yarn to be wound on pineapple cones.

Ordinarily, Nylon yarns are sized on single-end machines specially designed for this purpose. Yarn filaments will tend to pull apart because of static if they are not sized, but are heavily oiled. This condition is noted in filling yarns where friction is created in winding and quilling operations.

A barrel-type wind mechanism has been developed for single-end sizing of Nylon. The yarn is wound openly on the barrel so as to assist in steaming and drying the sized yarn. Careful control of tension must be maintained and humidity control is of great assistance in sizing.

BEAMING — Although Nylons are sometimes beamed on the silk system, the high-speed cotton and rayon systems have proved to be well suited for dry beaming of these yarns.

Tension is probably the greatest difficulty encountered in this process. Every effort must be made to keep tension at its lowest possible level. Careful humidity control will assist in the production of good beams, as it tends to prevent changes in fiber length. Tight yarn ends will not show up until after weaving; then yarn contraction will result in the appearance tight warp ends.

QUILLING — Bobbins are wound with a maximum final diameter of not more than twice the diameter of the bobbin barrel. Variations in tension caused by increase in yarn speed because of greater bobbin size have made sizes greater than the stated final diameter impractical. Another consideration in quilling Nylon is to have a firm bobbin so as to avoid sluffing. A maximum winding tension of 20 grams is permissible. A steel finger tension and compensator is used to provide this tension. The compensator tends to keep yarn tension uniform and prevent soft-nose bobbins from being formed. A metal guide should replace the porcelain guide at the end of the compensator so as to keep static electricity at a minimum.

When quilling from cones, over-end draw should always be used. With spools, however, an over-end draw offers a tremendous variation in tension. The yarn should always be unrolled and the spools held in a special type of creel built for this type of end delivery.

Spindle speeds should be held to 2,250 to 2,500 r.p.m. for bobbins, and to 2,000 r.p.m. for paper cops. A slower spindle speed is required when quilling from spools than when quilling from cones. A No. 7 wind is recommended for bobbins, and a No. 5 wind for cops.

WEAVING — Nylon may be woven on practically all looms formerly used for rayon and silk. Whereas few, if any, extensive changes are required, much more attention must be given to the quills.

Different mills have found that methods of handling must be varied because of variation in geographic location. What may apply to one mill will not apply in another. This has been found especially true in the conditioning of quills.

Many mills weaving Nylon have found it advantageous to refrigerate the quills overnight before use, keeping the temperature between 40 to 45°F. The underlying theory behind this operation is that the chilling increases the flexibility of the yarn. Roughly, it is stated that the increase in flexibility is in proportion to the temperature drop. This same principle has been used in the manufacture of Nylon, but only to assist in the cold drawing of the filaments.

During conditioning the yarn must be well protected from water and moisture. A drop of water falling on the yarn will require rewinding because it will stick the yarns together, causing difficulty in weaving.

If quill refrigeration is not practiced, the quills should be conditioned in a room of high humidity or in a corner of the weave room for 24 hr. A relative humidity of at least 65% should be maintained in the weave room. This conditioning allows the yarn which has been stretched during winding or other processing operations to regain its normal length.

Shuttles should be furred, as are those used for rayon, to control the yarns and prevent them from sluffing. Where multiple shuttle-looms are used the tensioning devices in each shuttle must be equalized to exert the same degree of drag on the yarn.

The lay of the loom is covered. Corduroy or another suitable covering is used, the purpose of the covering being to prevent the warp from cutting into the race, a condition not encountered with other yarns.

Heddles should be chosen with care, as Nylon warp yarns will cut them. Those of steel are usually preferred. Also, proper yarn sizing will do much towards correcting this condition.

Temples of the ring or grooved types may be used. However, they must hold the fabric at full width. If cork or rubber rolls do not possess sufficient gripping power, a single line of pins may be used on one roll. The pins must grip the selvages only, because pin marks in the body of the fabric constitute a defect and are hard to close in finishing.

For weaving some types of Nylon fabrics, an emery cloth coarser than that used for rayon may be used on the take-up roll. However, cloth take-up roll coverings are available in composition types possessing good gripping power without the damaging action of emery.

Modern Warp-Knitting Techniques

Tricot machines knit variety of fabrics at speeds up to 450 courses per minute

Warp knit fabrics have gone to war. Aside from the usual line of glove and underwear fabrics produced on warp knitting machines, manufacturers have found that it is possible to produce military fabrics ranging from extremely fine mesh mosquito netting to coarse camouflage nets. Because of the high rate of production of the new warp knitting machines developed in the last few years, and because of the tremendous range of fabrics in a multitude of intricate designs that may be produced, it is probable that extensive postwar use will be made of fabrics knitted on these machines.—*Editor*

By WILLIAM C. WINKLER
Queen City Textile Corp.

POSSIBILITIES OF WARP KNITTING have not, as yet, been fully utilized. Although use was made of warp knitting for producing silk stockings as early as 1589, little is known about this branch of the industry by the average textile mill man. Following is an abstract of a paper tracing the development of warp knitting and covering the various types of warp knitting machines in use today, presented by the author at a recent meeting of the American Association of Textile Technologists.

The upright machine, the forerunner of the present-day high-speed warp knitting machine, produced about 100 courses per min. Improvements in design gradually increased machine production to between 120 and 130 courses per min. Some manufacturers found that by redesigning and rebuilding their old machines, production could be increased to anywhere from 160 to 225 courses per min., depending on the particular method used by the different fabric manufacturers. The present-day machines, commonly referred to as high-speed machines produce from 250 to 450 courses per min., depending upon the fabric being manufactured.

The fabrics produced on tricot machines fall into several classifications; namely, single-bar, two-bar, three-bar, and cut-presser.

Single-bar fabrics are usually made from one warp and through one guide bar, although it is possible to use more than one warp and one guide bar and still produce a single-bar fabric. Although two-bar fabrics generally require the use of two warps and two guide bars, variations are possible. In the case of three-bar fabrics, three warps and three guide bars are generally employed. Variations are possible as in the case of one-bar and two-bar fabrics. Cut-presser fabrics are made from one, two, or three warps, and entail use of one, two, or three guide bars and the cut-presser attachment, depending upon the results desired. The cut-presser attachment consists of a presser bar which is designed to operate only at intervals, in order to produce a raised design on the fabric. The majority of the machines in operation today are 28-gage; that is, they have 28 needles to the inch. Other gages range from 7 to 32 needles per inch, depending upon the size of the yarn and the type of fabric desired. Through the use of different combinations—the number of warps and guide bars, gages and yarns—there is no limit to the types of fabric and designs which can be produced, ranging from the finest of nets to the heaviest of overcoatings.

SINGLE-BAR FABRICS cannot be considered as runproof, but they are definitely run-resistant, and in this respect differ from the ordinary type of circular-knit fabrics in use today. Although single-bar fabrics, in a variety of designs and patterns, are chiefly used in the underwear field, they are also used in a limited way in the glove and dress fields. As a result, coarse yarns from 100 to 250 den. are used in single-bar construction. Combination spun yarns, of coarse sizes, can also be used very effectively in the manufacture of novelty fabrics for shirting, blouses, etc. The recent trend in tricot fabrics has been away from single-bar fabrics to two-bar fabrics.

Two-bar fabrics are definitely runproof because two warp threads are interlaced through the movement of the threads over and under the needles. Two-bar fabrics can be made in either plain or fancy patterns and in closed and open-work designs.

Glove fabrics of the two-bar cotton atlas construction with a sueded finish, similar in hand and appearance to doeskin leather, are produced on tricot machines. A shortage of simplex fabrics has created a demand for a similar fabric made on regular two-bar tricot machines. This has resulted in the production of a domestic duplex fabric which consists of two pieces of finely knit cotton atlas fabric pasted back to back, the hand and appearance being similar to that of the simplex fabric. Use of rayon yarns has opened an entirely new field for tricot fabrics—the manufacture of all types of glove fabrics and of brushed and sueded fabrics. Various kinds of novelty and mesh fabrics also made of rayon are produced on tricot machines.

Another field in which two-bar fabrics have proved to be very popular, is the dress and outerwear field. Although two-bar tricot fabrics have been used for a number of years in the manufacture of dresses and other outerwear, it is only in recent years, due to improvements in construction, that they have been considered as staples. Their importance in this field can be attributed to their character, quality, and styleability. Many of the better dress houses are of the opinion that tricot jersey fabrics are still in their infancy, and have a great future ahead of them. The most popular tricot jersey today is a 40-in. acetate cloth, used for both discharge and applique printing. Through the use of combinations of different types of filament yarns, spun yarns, and spun mixtures, an almost unlimited number of patterns can be obtained.

FLEXIBILITY OF THE TRICOT MACHINE has again been demonstrated in the war effort, as on it has been made a fine mosquito netting fabric of which the Government has contracted for millions of yards, and also a very heavy camouflage netting, for which the Government is now seeking bids for about 95 million yards. Considerable quantities of two-bar fabrics, made of fine denier rayons, have also been purchased by the Philadelphia Quartermaster Depot, War Department, for use in the manufacture of underwear for the Women's Army Auxiliary Corps.

A great variety of fabrics, such as

extreme novelties for the glove and dress trades, can also be made on three-bar tricot machines. With the added flexibility which the three bars gives this machine, effects not obtainable on two-bar machines become practical.

With cut-presser machines, novel and highly raised nub effects can be obtained in fabrics of the one, two, and three-bar type. These effects are made possible by the use of the cut-presser attachment, operating in conjunction with one to five pattern wheels and the proper entry of the yarns in the particular bar or bars to be used for the pattern. In order to insure proper quality, great care must be exercised in fitting the cut-presser attachment to the machines. This requires extreme accuracy in cutting the presser bar so that it presses only on the needles on which it is intended to operate; otherwise there will be a distortion of the pattern. Although the speed of this machine is as great as that of the regular tricot machine, the production of these fabrics is necessarily small because only a part of the mechanism is in operation which the pattern is being produced. The speed of production depends entirely upon the pattern desired.

In the opinion of the author this is one of the most interesting knitting machines ever developed because of the many novel types of fabrics it is capable of producing. In addition to operating these machines for pattern work, they can also be used for the production of regular one-, two-, and three-bar fabrics. The simplex machine, a comparatively new machine, has been in general use only for about a decade. The inability to obtain perfect cohesive qualities on duplex fabrics stimulated the efforts of machine designers and builders, which resulted in the development of this machine. In practice it is really two tricot machines built back to back, being operated equally well from either side. Each side is equipped with its own needle bar, sinker bar, presser bar, and guide bar which is operated by its individual camshaft.

To insure good knitting, perfect harmony must be maintained between the operation of the two sides. The distinguishing feature of the fabric it produces is that it has two face sides. This is accomplished by the needle bar on the front of the machine building the face of the fabric on the opposite side of the machine, and vice versa.

Best results can be obtained on this machine by using fine yarns. Although fancy effects can be produced, the demand has been confined, almost entirely, to plain fabrics for use in the glove industry. Some of these fabrics are made of rayon, but the most prominent is the sueded finish 24-row atlas cloth, made of finely spun, long-staple cotton yarns. This cloth has grown tremendously in popularity; consequently, today, it is impossible to fill the demand, and this is the only reason for the continued use of duplex fabrics.

THE MILANESE MACHINE more closely resembles the original flat-bar knitting machine than does any other warp knitting machine now in use. The carriages containing the warp bobbins float in a trough of water and are propelled only by the pull of the threads created by the knitting action. Although considerable progress has been made in the development of this machine, it has never been perfected to the same degree as the tricot machine.

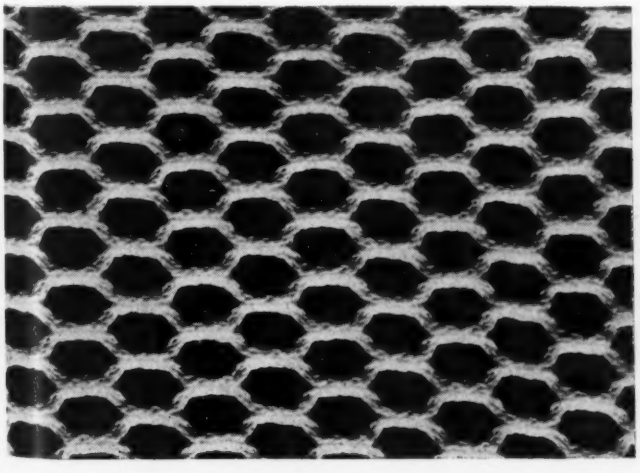
The first fabrics produced on milanese machines were used for gloves, and were largely constructed of silk. Milanese machines are today used in the production of both glove, and to a lesser degree, underwear fabrics. There is a large current demand for both plain and sueded milanese fabrics, made of comparatively heavy denier rayon and cotton. As there are only two types of stitches that can be made on the milanese machine, the use of this machine for the manufacture of dress goods is comparatively limited. About the only type of dress fabrics for which it is adapted is the plaid, of which many variations can be made by the use of different pattern set cuts and yarn combination.

Another machine of the warp knitting group is the jacquard raschel machine, which, although equipped with two needle bars, has only one camshaft, one sinker bar, and one presser bar, together with two warp beams and a jacquard attachment. This jacquard attachment is similar to that used on looms.

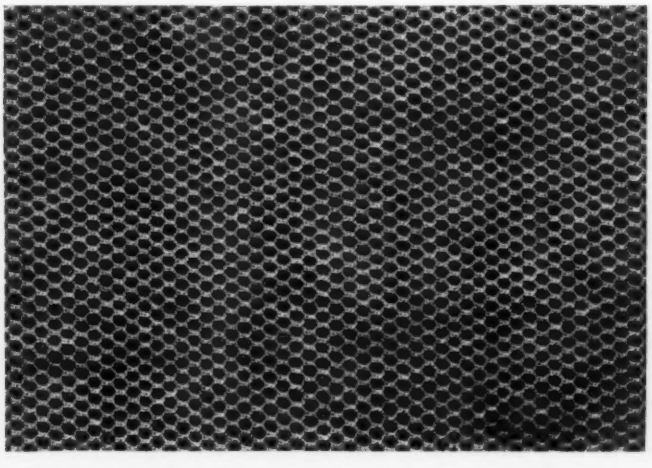
Incorporation of this attachment into the knitting machine makes it possible to knit into either solid or open lacework fabrics of any kind of geometric or tapestry design desired. These fabrics are mainly used in the manufacture of lace mitts for evening wear. Other uses are cut hosiery, hair nets, veilings, blouses, underwear, etc.

The raschel latch-needle machine differs from the conventional types of warp knitting machines because latch needles are used, whereas in tricot, simplex, and milanese machines, springboard needles are employed. Fabrics of a coarse nature are mostly made on this machine.

There are in operation in this country today about 638 slow-speed tricots, 608 high-speed tricots, 14 cut-pressers, 104 simplex and 322 milanese machines. These figures cover 41 mills and represent the best estimates available.



Type of camouflage cloth produced on tricot machines for the Army Engineers Corps, of which Government is now seeking bids for 95,000,000 yd.



Mosquito netting, as procured in large quantities by the Philadelphia Quartermaster Depot, manufactured on a tricot machine.

Bagging From Domestic Flax

Proves superior substitute for burlap; coarse linens possible for post-war use

By JOSEPH B. HOSMER
State Engineering Experiment Station
Georgia School of Technology

WAR DEMANDS for substitutes for such textile fibers as jute, hemp, henequen, and sisal have served to divert the emphasis on the flax processing project at the State Engineering Experiment Station, Georgia School of Technology, from degummed and highly refined types of fiber for medium—and high-quality fabrics to the immediate production of low-grade fibers suitable for use in bagging, cordage, and similar uses for which flax has normally been regarded as too expensive. Laboratory and pilot-plant investigations and mill tests completed in line with this altered objective have demonstrated during the last few months that flax fibers derived from field (or dew) retted seed flax can be successfully processed by the Tech-Flax process at a favorable price (war conditions considered) to produce: (1) 100% flax yarns ranging from 0.6s to 1.5s cotton count, which can be woven into burlap bagging generally superior to any other substitute for jute thus far proposed; and (2) 100% flax twine ranging from 0.21s to 0.25s suitable as a substitute for binder twine.

Processing of this seed flax fiber into 100% flax yarn is comparatively simple, since the difficulties of spinning are largely by-passed by wet-twisting the yarn under tension. A limited supply of field-retted flax straw from the Northwest is available. Its cost is less than fiber flax straw. Plants equipped to convert a considerable part of the straw into tow are already established. Although the fiber obtained lacks uniformity, it is of a quality sufficient to meet the requirements for the war uses listed, as well as other uses in the bagging and cordage field.

Disappearance from the markets available to the United States of jute, hemp, henequen, and similar fibers presents an insistant demand for upwards of 20,000 tons of fiber, plus a potential demand which may be many times as large. The logistic inference from the general war production situation was recognized by the project staff, the Engineering Experiment Station, and the Tennessee Valley Authority as limiting whatever was done to: (1) use of straw already being grown; (2) extracting the fiber with equipment already available; and (3) producing yarns and fabrics on cotton mill machinery. The solution which emerged during the fall months of 1942, and which is now in process of commercial application, has been developed with these conditions in mind and appears to meet them completely.

Usual plantings of seed flax in the Northwestern states average 2,900,000 acres. On the basis of estimates by the Minnesota Extension Service, the total useable straw available would be about 300,000 tons. This might be expected to yield, by the somewhat crude decortication methods employed, about 75,000 tons of tow, which, when refined at the cotton mill, would produce about 25,000 to 33,500 tons of useable textile fiber.

DECORTICATING PLANTS, apparently of sufficient capacity to satisfy the more pressing of the needs listed are already located in the growing areas. The two breakers with which they are equipped will reduce the field-retted straw to about one-fourth its volume. This treatment is rougher than the Tech-Flax system, so that the tow will yield only from one-half to two-thirds as much useable fiber as if it had been processed from the straw through the tank retting, decorticating, and refining system developed by the State Engineering Experiment Station. In consequence, a considerable part of the fibers are damaged and the final recovery of textile fiber ranges from 30% to 45% of the tow weight, or from 8% to 11% of the straw, whereas the Experiment Station process would produce from 13% to 17%.

The balance of the 25,000 to 33,500 tons of fiber potentially available in the Northwest will have to be secured from green, or unretted straw. This requires the development of a chemical retting technique suitable for this type of straw and the equipment which is available.

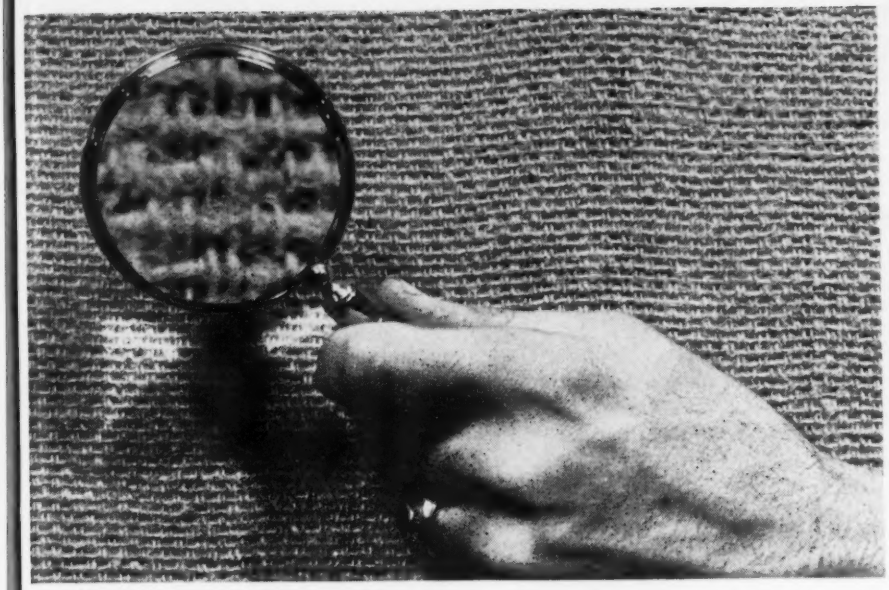
The textile processing so far has been done successfully only on cotton mill equipment. Although the present high level of mill production may present a problem in the location of sufficient capacity, it is believed that the four or five mills required can be located. In any event, the problem appears to be up to the cotton mills, since the only other solution of the bagging problem appears to be osnaburg, or similar cotton fabrics.

The wet-twisting-under-tension process appears to be capable of producing 100% flax bagging yarns ranging from 0.6s to perhaps 2.5s cotton count. The estimated mill cost for the fabric necessary to make a 250-lb. raw sugar bag ranges from a high of 60 c. down to a low of 42 c., depending on the delivered cost of the tow, the yield of textile fiber from the tow, and the weight of fabric necessary to exceed the minimum bag standards.

The bagging on which most of the testing was done was designed to match the specifications for a standard, jute raw-sugar bag. Such a bag was

Tensile strength and weight of flax, jute, and cotton raw-sugar bagging

	Weight Oz. per Sq. Yd.	*Tensile Strength in Lb.*	
		Warp	*Filling*
Tech-Flax bagging (warp 16–17, filling 8)			
Sample 1	20	132	128
Sample 2	21.6	129	138
A.S.T.M. standard for jute raw sugar bag (1933)	18	125	90
Proposed cotton twill bagging	7.1	81	88
Tentative standard	7.5	80	80



Linen fabric for raw-sugar bag

carefully studied as a preliminary. The fabric produced was a plain weave with 1.5s warp and 0.6s filling, 16 x 8 construction. It required 2.55 lb. of this fabric to produce a bag. The accompanying table presents data on two tests of this fabric in comparison with the specification standard for a jute raw sugar bag, and for a proposed cotton bag.

It will be noted that Tech-Flax bagging exceeds the strength of both the jute standard and the osnaburg. The sample tested was slightly heavier per sq. yd. than the jute standard and three times the osnaburg. The excess strength in the filling of the Tech-Flax bagging would easily permit reducing its weight below that of the jute, perhaps to the point where the fabric required for a bag would only weight 2.3 lb. The osnaburgs, both the sample and the proposed standard, have strength of about three-fourths that of the jute standard.

A sample lot of the bagging covered in the test was woven sufficient to produce 300 raw sugar bags. Service tests indicate that they will meet the hazards of shipping as well as the standard jute bag.

STEPS IN THE PROCESS. The general procedures worked out in the pilot plant at the Engineering Experiment Station for the utilization of field-retted seed flax can be carried on by the average cotton mill. The tow, when received still contains a large proportion of shive and short fibers; therefore it must first be cleaned before the yarn is made. This cleaning is accomplished with a centrifugal air duster, after which the fiber is run through a garnett waste opener.

The sequence of operations in preparing the yarn begins with a cotton opener, a two-beater (carding) one-process picker, card with continuous stripper, drawing frame, long-draft fly frame, followed by wet twisting under tension on a cotton twister. The weaving is the same as for cotton.

BINDER TWINE. Apparent shortage of henequen fiber last fall caused a large number of inquiries regarding the possibility of using flax for binder twine and other rough or heavy cordage purposes. Utilizing the technique already described for bagging yarns a series of twisted twines was produced which ranged from 0.21s to 0.25s count. The tensile strength for these twines averaged only slightly over half that of the henequen sample used for preliminary analysis, but was somewhat over the minimum figure of 40 lb. necessary for use on a binder. The flax twine, however, can be given a greater stiffness than other proposed substitutes. Accordingly, if the necessary tow can be secured, 100% flax binder twine appears a definite possibility.

The agricultural work for the project being carried on by the College of Agriculture indicates definitely that flax might profitably be grown in South Georgia as a winter crop. It does not appear practical, however, to press immediately for commercial growing in the South. Such a development, however, is being given definite post-war consideration.

LONG TERM PROGRAM. The broad program of flax research which has been going on at the Experiment Station since 1937 and which was interrupted by this emergency demand for bagging and similar products has equally important results which may be expected to be post-war factors in the medium-priced textile field. The original objective was to develop methods of mechanical decorticating and chemical degumming which would produce a stapled fiber which could be spun on cotton-mill machinery. The results so far attained seem to justify this original objective, although the present state of the processes developed indicates the necessity for some modification. It has been found that a partial retting is desirable as a part of the decortication process and some modification of the drawing process in spinning seems essential.

In the post-war future new types of fabrics may be expected to appear and win public approval. They may not necessarily follow conventional and historic trends. Imaginative use of the coarse flax yarns and weaves created for emergency use as bagging may well figure in this post-war development. Linens in general become softer and more pleasing with use. This might, for example, lead to public acceptance of an all-flax sheeting which would provide the insulating and absorptive qualities of linen at a consumer cost no greater than a medium grade of cotton and which would become softer and softer with use.

The more important generalizations which can be drawn from the six-year study are: (1) Seed flax appears to offer the more possibilities of farm profit than fiber flax because of much lower harvesting costs and higher seed yield. (2) The tank-retting and decorticating process appears to be the more desirable basis for the eventual establishment of a flax industry. (3) By segregating the long and short fibers on a French worsted comber, it is possible to spin 100% flax yarns of finer counts from the longer fibers on cotton machinery; although 5s (cotton count) are the finest thus far produced in the pilot plant, this is not regarded as the limit; the short fibers from the segregation can be used in toweling in mixture with cotton; fabrics of 75% flax can be consistently spun up to 14s, and 50% has been spun as fine as 20s. (4) The chemical degumming process has definite possibilities, but thus far the cost of producing degummed fiber appears too high to create enough textile interest to justify attempting an agricultural development based on this process. It is believed that the mill experience derived from the retted-decorticated and refined fiber may ultimately lead to the solution of spinning fine yarns from this type of fiber.

Don't Let Your Transformers Ge

By M. H. BATES
Power Transformer Engineering Dept.
General Electric Co.

THE ATTENTION given a transformer during its first few months in service is very important to assure long life and successful operation. Keeping a close check on the initial three months' operation will indicate whether the equipment has been properly installed, and, if not, it will reveal any existing or incipient troubles.

Correct installation of the transformer is a matter of mutual interest to both the manufacturer and the purchaser, particularly when a complicated, high-voltage transformer is involved. The nameplate of most transformers cautions the purchaser to read carefully and follow the instructions accompanying the equipment before installing it. In spite of these carefully compiled instructions, some strange things are done in installing transformer equipment. If transformers are installed properly and thus given a fair chance, they will operate for years on end with the minimum of need for major overhauling. Sometimes good performance is handicapped by installing the transformers in a place where they will be operating under severe conditions. They should not be installed in poorly ventilated rooms, or where they will be exposed to dirt and fumes, or near high-temperature furnaces, or in boiler rooms, if they are to give the most efficient, trouble-free operation.

Assume a typical transformer has been properly installed, and all connections have been correctly made. Right at that point—even before the transformer is energized—three things should be done.

First, the oil should be checked for proper level at 25°C. On small transformers, this means seeing that oil is up to the mark inside the tank. Larger transformers have gages which indicate the proper oil level at 25°C. If it is below this level, the oil may not circulate properly and the transformer may overheat, whereas oil much above this level may overflow when full load temperatures are attained, and cause excessive gas pressure in "sealed" transformers or excessive loss of gas in "gas-seal" transformers.

Second, the ambient temperature should be checked. If the air surrounding the transformer exceeds 40°C. (with a 24-hr. average of 30°C.), full load should not be carried, and ASA Standards should be consulted before the transformer is loaded.

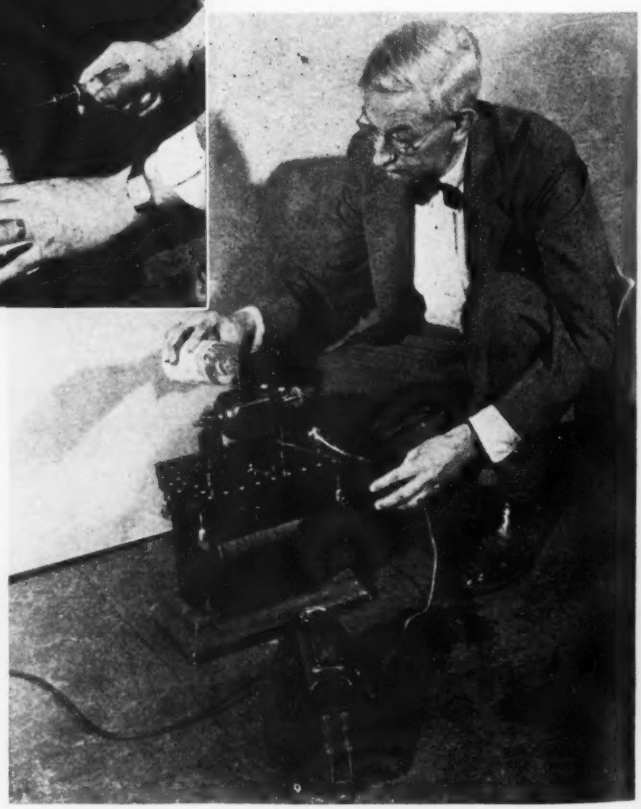
Third, dielectric strength of the oil should be checked, taking samples from the top and bottom of all the transformer's oil containers. Some specially designed transformers have as many as five separate compartments containing oil. It is important that a check of the oil in each compartment be made. The standard dielectric strength of oil when shipped is at least 25 kv. when tested between 1-in. disks spaced 0.1 in. apart in standard oil test receptacles.

DIELECTRIC TESTS will be worthless if the oil is not sampled properly. Here are the fundamental precautions for correct sampling: (1) Clear-glass, 1-qt. bottles are recommended for sampling. If a metal container is used, be sure it is free from rust or solder. (2) The bottle must be thoroughly clean and dry. It is usually a good idea to rinse it with clean, dry oil and allow it to drain for a few minutes. (3) Before drawing a sample from the bottom of the tank, clean the valve and allow some oil to run off. This can be as much as a quart in the case of a large transformer. This will remove any condensate that may be in the valve. (Samples from askerel-filled transformers should be taken from the top through the small valve or plug provided for the purpose.) (4) Stopper or cap the container, and seal it with paraffin or wax immediately after drawing the sample. Do not use rubber or composition of rubber for gaskets or stoppers. If the sample is going to be sent away for testing, pack the bottle carefully to avoid breakage in shipment.

Dielectric strength tests of oil samples should be made each week for the first four weeks that a transformer is in operation.

Thereafter, dielectric tests should be made once every three months for water-cooled transformers, and once every six months to a year for other types, depending on the size and importance of the installation. Water-cooled transformers should be given a more frequent check because of the

Sample oil in a 1-pint, clear-glass bottle that is clean and dry. Wiping the valve and running off some oil before taking the sample are good preliminary precautions.



Portable set for dielectric testing. Oil that tests 20 kv. or less should be put through a filter press.

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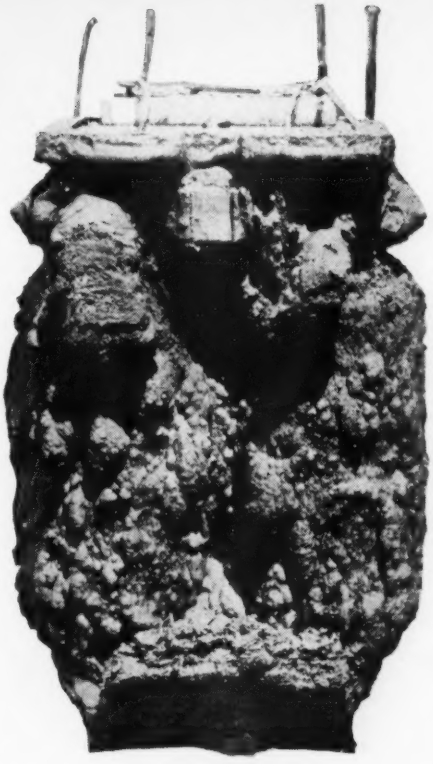
Industrial transformers will take a lot of abuse before they refuse to function, but they should be given a fair chance. Proper installation, careful attention for the first three months of service, and periodic checking thereafter will assure many years of operation with the minimum need for major overhauling.



greater possibility of water leaks inherent in their construction.

Oil that tests 20 kv. or less on a dielectric test should be passed through a filter press. Where filter-press equipment is not needed frequently enough to justify this purchase, the oil can be filtered at the manufacturer's local service shop; or special arrangements can sometimes be made to obtain the equipment to do the job from the local utility company or the manufacturer of transformer equipment. Proper filtering of oil in an efficient press will raise its dielectric strength to values between 25 and 30 kv. Immediately before using, the filter paper must be thoroughly dried according to the manufacturer's instructions.

For the first three months a transformer is in operation, a frequent check should be made of the oil level (or for evidence of loss of oil if no gage is provided), the ambient temperature, and the oil temperature. Any deviation from normal in these conditions probably indicates some trouble that can be easily rectified.

Transformers that are equipped with a winding temperature indicator should be checked at least twice daily to be sure that "hot spot" temperatures are kept within safe limits. On an ordinary transformer, the maximum coil temperature should not exceed 90°C. If it does, an investigation should be made if the condition exists for more than the permissible overload period. The same thing holds true of the top oil temperature, which should not exceed 85°C. for more than a permissible period, as set forth in ASA Guide for Operation of Transformers, C-57.3.

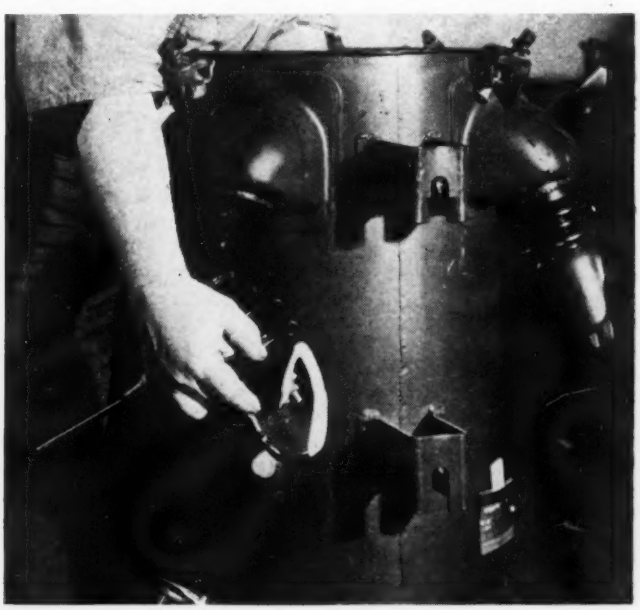
REMOVING MOISTURE. In transformers which are not sealed, thus permitting breathing of the air above the oil level, moisture may collect on the underside of the cover. There are three common causes of this condition: (1) leaky gaskets; (2) cracked or damaged porcelain bushings; and (3) restricted breathing. In the first event, a new gasket is required; in the second, the bushing will have to be repaired or replaced; in the third, the breathers must be freed of dirt or other obstructions.

Transformers of this type should have the manhole or main cover removed for inspection after a short initial period of operation and periodically thereafter. If moisture, corrosion, or deposits of any type are found, the causes should be determined and corrected at once.

Complete details on methods of drying are contained in the manufacturer's instruction books and should be followed closely. Moisture can be removed in either of two ways with the windings and core immersed in oil. One is by short-circuit drying of the windings; the other is by the so-called normal-operation method of drying.

Briefly, the short-circuit method consists of heating the windings and oil by short-circuiting one winding and applying a suitable voltage to the other. Water vapor given off by the hot oil is carried away by ventilation and filtration. The normal-operation method is

On small transformers, look inside the tank to make sure that the oil is at the proper level at 25°C.



Damaged porcelain bushings should be replaced with new bushings.

applicable only to transformers that normally permit breathing of air, and is accomplished mainly by forced or natural ventilation, and partially by filtration, while the transformer is in operation. Although this method can be used without shutting down the transformer, it should be used only in dry weather and if it is not feasible to remove the transformer from service for applying the short-circuit method.

A method of drying with the windings and core not immersed in oil and, preferably, inclosed in a temporary housing is the forced-air method. It consists of forcing clean, dry air at a temperature of 85°C. into the coils and insulation at the bottom of the transformer, allowing the air to escape at the top.

In replacing cover use drift-pins to guide it to proper position for bolting so further movement that might endanger gasket will not be necessary.

This method is preferable for rectangular shell-type units because of their mass of solid insulation. Large quantities of air are required for a thorough drying job. The oil is dried separately by a filter press.

Oven drying is another method that can be used if necessary. This method entails removing the core and coil assembly from the tank and drying it in an oven, as the name implies. Still another method is the natural-draft method, in which heated air is allowed to circulate through the transformer by natural draft. Source of the heat may be resistance grids or a steam coil. There is a potential fire hazard in all types of hot-air drying if oil drips on the heat source or if the temperatures are not carefully controlled.

Usually, it is the safest practice to obtain recommendations regarding the drying of a large transformer from the nearest office of the manufacturer. Requests for this information should mention the serial number of the transformer with the voltages and kva. available for drying, and also indicate whether any step-up or step-down transformers are available.

CHEMICAL TESTS OF OIL. Color of the oil may indicate an abnormal condition. New transformer oil has very little color when viewed through a clear bottle approximately 1½ in. in diameter. After ten or fifteen years in a normally operated transformer, oil should be no darker in color than lager beer. Oil that is approaching the stage where sludging may result will be slightly reddish in color. The darker it becomes, the worse is its condition. Sludging in transformers built during the last 20 years is rare.

Oil that is badly discolored or sludged should be subjected to a chemical test. Most transformer manufacturers will make this test for a nominal fee, furnish a report on the condition of the oil, and make recommendations regarding any servicing required. Ordinarily, the oil is given the following tests: (1) specific gravity, (2) viscosity, (3) dielectric strength, (4) neutralization (acidity), and (5) color (according to National Petroleum Assn. Standards).

COOLING WATER TEMPERATURE. On water-cooled transformers, the incoming and outgoing water temperatures should be checked weekly during the initial installation period and every three months thereafter. Cooling water going into the transformer should not have a temperature of more than 25°C., and the temperature of the outgoing water should not be more than 10° higher. If there is a rise in temperature of more than 10°, the amount of water supplied may be insufficient. If this rise is less than 10° at the specified rate of flow, there is a possibility of scale forming within or of oil sludge deposit on the outside of the coil. Thermometers installed permanently on the ingoing and outgoing water connections will facilitate these temperature checks. If the transformer has multiple cooling coils, the flow of water through each section should be adjusted so that the temperature rise in each one is the same.

CLEANING COOLING COILS. Scale and sediment can be removed from a cooling coil without removing the coil from the tank. First, disconnect both inlet and outlet pipes from the water system and temporarily pipe the coils to a point several feet away from the transformer. Next, blow or siphon all water from the coil, and pump it full of a solution of equal parts of hydrochloric acid and water. Leave one end of the coil partially open to prevent abnormal pressure which may otherwise result from the chemical action. Let the solution stand in the coil for an hour and then flush it out with clean water. Repeat the operation if all the scale is not removed the first time.

An oil deposit may form on the outside surface of the cooling coils in a water-cooled transformer after it has been in service for many years, especially if operating temperatures have been high. Obviously, this decreases the efficiency of the coil and results in higher oil temperatures. To remove oil deposits, the coil should be removed from the tank and scraped with a small, flexible chain.

SPARE TRANSFORMERS. Time and expense will be saved if spare transformers are kept in readiness for instant use. It must be remembered, however, that the spare transformer requires maintenance just the same as the transformer in operation. Once every six months, the oil level and its dielectric strength should be checked. Tight gaskets and breathing through a dehydrating breather, properly maintained, will help maintain the oil dielectric. On conservator-type transformers, oil should be kept in the conservator at all times. Watch the oil gages of such transformers when sub-zero temperatures exist. Checking these items regularly is the only way to be sure that the spare transformer will be ready for use when it is needed.

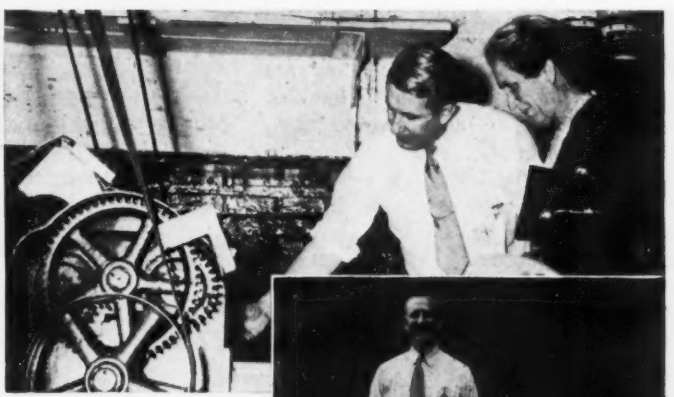
Glimpses of Annual Avondale Tour

No room on the Jeep for Messrs. Dunn, Griggs, and Collough (standing).

This happy group is watching the Kindergarten program put on by the Birmingham plant. From the left, I. C. Schumacher, S. Y. Austin, Mrs. Hugh Comer, Hugh Comer, Alex Turner, Victor Nelson. Second row: Capt. Edwin H. Place, W. M. Rogers, J. H. Hyde, Mr. McCay, Mrs. Frances Rumsey, Editor of *Avondale Sun*, and Earle Mauldin, southern editor, TEXTILE WORLD.

The 22nd Annual Inspection of the various units of Avondale Mills was a heart-warming affair. These trips are arranged to give officials, superintendents, employees' committees, and a group of visitors the opportunity to become familiar with each of the eleven mills in the group, located at Sylacauga, Birmingham, Pell City, Sycamore, Alexander City, Stevenson, and LaFayette. In addition to tours through the mills, barbecues, luncheons, school entertainments, trip through the hospital, and other features were provided. The Armed Forces were well represented, selected speakers stressing the urgency of top production and pleading for an ever-increasing effort on the part of every man and woman in the organization. The pictures were snapped at various points through the tour.

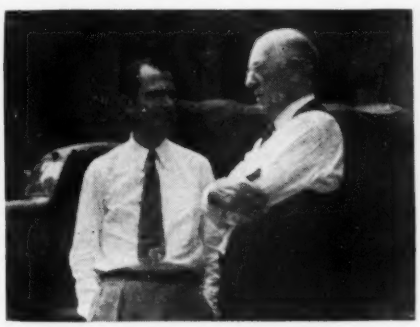
A group of West Point (Ga.) Mfg. Co. visitors join the party at LaFayette. Since they are possible customers Charlie Northen seems happy. From the left—Joe Jennings, R. W. Jennings Jr., Chas. Northen, J. B. Jones, and Joe Lanier.



Hugh Comer explains the machine to Mrs. Herbert C. Ryding.

This White Elephant of lost-time accidents has been thrown out of the Birmingham plant. Bill Williams, who is superintendent of that organization, seems happy over the card on the model's back which reads "No lost-time accidents in this plant since Jan. 20, 1942."

Bragg Comer and Sam Burt at Pell City. The soldiers were here too.



Craig Smith and S. Y. Austin, company president, relax at Birmingham.

LOOMFIXERS' MANUAL

RAYON AND SILK SECTION—Chap. VIII (Cont.)—Protection Motion

By H. E. WENRICH

CORRECT DAGGER POINT POSITION in relation with the knock-off lever is shown in Fig. RS45, section *A*. The top of the dagger, when horizontal, should be slightly under the center position of the lever so when the dagger strikes into the lever the force of the blow will cause the dagger point to seat itself upward. On looms having a short lever block in the head end, the dagger should be at least ⅛ in. shorter on this dead end than on the knock-off end. It is necessary for the brake and shipper handle end on the motor side to be knocked off first with the knock-off lever, otherwise the solid shock of the striking daggers will, in time, break the loom at various points.

At section *B* the dagger is set too low and causes the lever to be chipped off in time, while at section *C* the dagger is set too high and will often cause bang-offs for no apparent reason. An inspection of dagger position will show that the setting is wrong. Damage may be caused by heavily tensioned rod springs, as shown in section *D*. When the shuttle is traveling across the race plate, the rod has moved in the bank-off position while the lay is moving backwards, causing the dagger to rub up tight against the lever and wear it as well as the dagger, as shown. In position *E* the lever has become worn and requires replacement. As long as the old lever is on the loom the protection will fail to function when needed. The dagger that is made of all metal will need a new piece welded on its end to bring it to the proper length.

After the protection rod has been adjusted the proper clearance between the dagger and the lever is secured by placing a shuttle in the box. Inspect the dagger point by looking under the breast beam. The dagger should clear the lever by ¼ to ½ in., as shown in section *F*. Some fixers allow a greater clearance, but this is not recommended as the dagger might strike underneath the brake rod and jam the dagger point so tight that the weaver will be unable to pull the brake handle back. After releasing the jammed dagger from the brake rod, the dagger rod will frequently be found bent.

Several methods of straightening bent daggers may be used. The best method is for the fixer to make a pipe-stand out of ¾-in. piping, as shown in Fig. RS46, part *A*. This is made in two or three sections so the fixer can take it apart and place it in his tool box. The bottom section consists of a floor flange to keep the tool upright. The top section has a nipple to permit adjusting the length of the tool over a distance of several inches so it will fit between the floor and the dagger. A hole can be drilled through the pipe and a short length of cable cord tied into a loop to be placed over the dagger. Bend down on the opposite rod dagger end with a monkey wrench, as shown. Never bend upward. After bending, bring the lay forward so the dagger points fit under the knock-off lever. Inspection of the dagger points will disclose the side needing further bending.

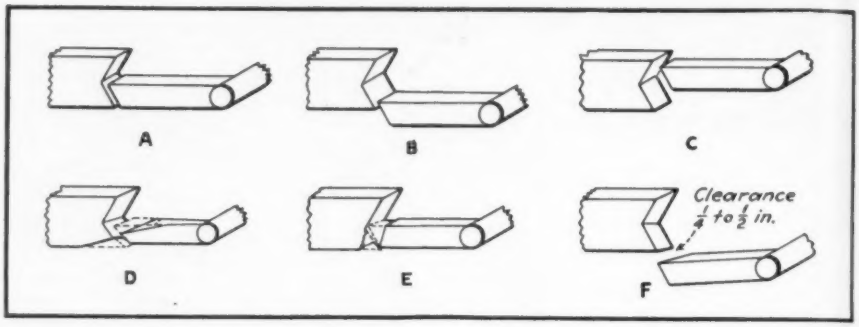


Fig. RS46. Tool easily constructed for straightening the dagger and protector rod.

The second method requires two fixers to bend the dagger points. Each fixer uses a monkey wrench on each of the dagger points. One fixer bends the dagger point down while the other fixer holds his end from bending.

Another method calls for the use of a steel adjuster for bending the dagger ends. The trouble with using an adjuster is that the dagger ends become bent in the manner shown in part *B* which usually proves detrimental to satisfactory running of the protector. It is a good tool, however, for the fixer to have in his tool box and is satisfactory for making slight adjustments.

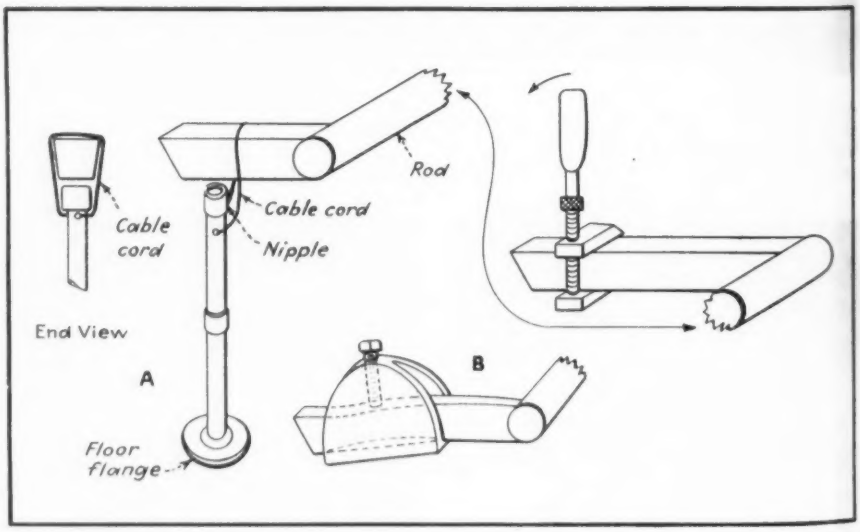


Fig. RS45. Dagger positions in relation with the knock-off lever.

FIXING HOSIERY MACHINES

FULL-FASHIONED MACHINES—Chapter XIX
Double-Spindle Reinforced Selvage Attachment

By WALTER A. SIMOND

THE TWO-NEEDLE CLOSED SPLIT MECHANISM which is mounted on the selvage nuts in the early type machines, is operated by a cam 19, lever 20 vertical link rod 21 shown in Fig. F 58a, and the slide rods 1 and 2 shown in Fig. F 59. The vertical slide rods must be properly lubricated and kept straight so they will slide freely in their bearings. The cams 3 and 4, on the slurbar, must be timed to release the stop slides 5 and 6, and allow the extra two-needle movement of the carrier rods as needed. The diagram Fig. F 60 shows clearly by the dotted line extension of the arrow points on the lines which represent the movement of the carrier knitting the central portion of the fabric where the carrier stop slides must be lifted to close the split suture as the selvage nuts are moved in either direction to knit a cradle sole or a pointex heel.

The stops on the carrier rods, which contact the vertical slides in the selvage heads, in making closed split sutures, need to be carefully adjusted for length and locked; and those which hold the carrier rods for plating or alternating carriers carefully set and locked to hold the carrier rods as nearly motionless as possible and allow for perfect slide action in order to prevent damage of the sinkers and resulting needle breakage.

THE DOUBLE SPINDLE REINFORCED SELVAGE ATTACHMENT of Reading machines when used for a two-needle closed split, as in a cotton sole or black heel, is set for alternate action of the selvage heads in the following manner described by Textile Machine Works in Erector's Bulletin No. 49, Supplements N-1, P, and Q: (1) Run a chain button under chain motion lever controlling operating rod, No. 1, Fig. F 61 so that this rod will be pulled to the left. Screw, 2, must be turned back so it will not contact the lever, 3. (2) With operating rod, 1, in this position, hook the vertical face of trip lever 4 in back of projection 5 and tighten collars 6 and 7 on the operating rod to contact 23. (3) Release lever 8 and allow it to drop to the lowest point of the cam. Set collar 9 on rod 10 so that the projection of lever 4 will clear the bottom of projection 5 on lever 11. (4) Make sure that collar 20 is loose on the operating rod and set collar 21 on operating rod 12 against lever 13 in the usual manner.

Since the selvage heads cannot be moved during the narrowing cycle without damaging the sinkers, the machines are equipped with narrow selvage cams and adjusting screws near the top of the trip levers, as shown in Fig. F 62. "It is important that the selvage buttons be placed on the narrowing chain either in line with the narrowing button or ahead of it—never one link after the narrowing button to cause the selvage lever *A* to drop while the camshaft is being shifted back to the left and cause it to land with considerable force on the adjusting screw of trip lever *B*.

"*Note:* If it is desired to have the selvage spindles make a reverse movement immediately following a narrowing operation, it is essential that a double button be placed in line with the narrowing button. This must be done in order to prevent the pawl reversing mechanism from being shifted back to its idle position before the cam lever indexes the spindle, thus causing a forward instead of a reverse movement. The use of a double button for this purpose is especially important on the finger gage machines (48 and 51 gage), as it has been found in several instances that use of a single

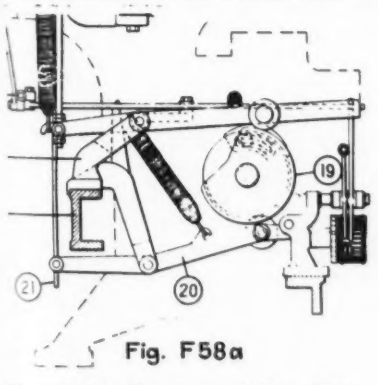


Fig. F58a

Fig. F58a. Section of Fig. F58 from April issue.

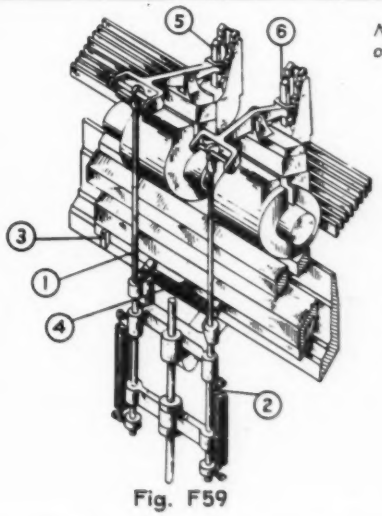


Fig. F59

Fig. F59. Adjusting the two-needle closed split mechanism.

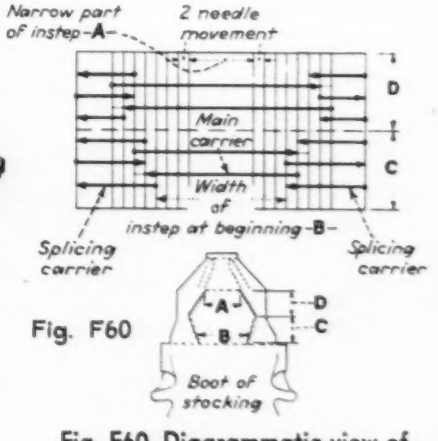


Fig. F60

Fig. F60. Diagrammatic view of stocking foot and of carrier rod movement during formation.

button allowed both pawls to drop in partly for a short time, resulting in serious smashes.

"Setting: Set the cam with the regular needle bar gage, using the groove milled in the circumference of round half of cam *C*.

"With the roller on the round section (shifting point) of the cam, as shown in the sketch, set the ¼ in. adjusting screw on Lever B so that there will be approximately 0.015 in. clearance between the cam and roller."

ARRANGEMENT FOR FOUR - NEEDLE STEPS: "To provide for automatic control of both two and four-needle shifting of the selvage heads, the right side shifting unit was redesigned to eliminate all hand operations previously required. With this equipment it is possible to shift either two or four needles as and when desired, except when knitting styles incorporating a two-needle closed split. This arrangement operates only when the right side spindle is moved first; and the closed split construction requires movement of the left side spindle first. The four-needle step is especially valuable in reducing corner loop breakage and topping difficulties.

"Operation: When the low section *A* of chain button 14, Fig. F 61 comes under the chain motion lever controlling operating rod 1, this rod is pulled to the left a distance of half its normal movement. Because of the difference in construction of the chain motion lever 11, the chain motion lever is shifted only half the distance required to release the left side selvage lever 22; while the right side lever 15, is shifted free of the right side selvage lever, 8. This allows selvage lever 8 to drop down between lever 15 and screw 16, thus producing a two-needle movement of the selvage spindle. Now, as the high section *B* of chain button 14 moves under the chain motion lever, the left side selvage lever 22 is released, allowing a two-needle movement of the left side spindle. At the same time, however, the right side lever is pushed the full distance, allowing screw 16 to move directly under selvage lever 8. When selvage lever 8 drops down for the second time, it will push the distance piece 17 down far enough to clear the projection 18 on lever 15, thus allowing lever 15 to drop back to the position for holding selvage lever 8 when it is returned to its inoperative position. This action gives a second two-needle movement of the right side spindle, but prevents a third when chain button 19 comes under the chain motion lever to provide for a second two-needle movement of the left side spindle.

"Setting: 1. Run the low part *A* of button 14 under the chain motion lever controlling operating rod 1 and set collars 7 and 20 against lever 11 so that lever 15 clears the selvage lever 8. Make sure that selvage lever 8 clears both lever 15 and screw 16 by approximately 1/16 in.

"2. Now move the high part *B*, of button 14 under the operating lever and drop the right side selvage lever to its lowest position. Then adjust screw 16 so that distance piece 17 will be pushed down far enough to allow lever 15 to return to its normal left position.

"3. Place the chain buttons in either row 4 or 5 of the narrowing chain as desired—row 4 for reverse movement of spindles; row 5 for forward movement of spindles. When buttons are placed in row 5, make sure that screw 2 contacts the chain motion lever, 3, when there is no button under the lever; otherwise neither left side lever 22 or right side lever 8 will be released. Set collar 21 against lever 13 so that the button will give sufficient movement of lever 13 to reverse the pawl action of the selvage spindle.

"Button 14 must be placed on the chain in every case so that the low part, *A*, will come under the chain motion lever as the carrier is moved from right to left, thus causing completion of the right side spindle shift as the carrier moves back to the right. This sequence must be followed at all times; otherwise the mechanism will not function properly.

"The regular two-needle movement, use regular buttons only."

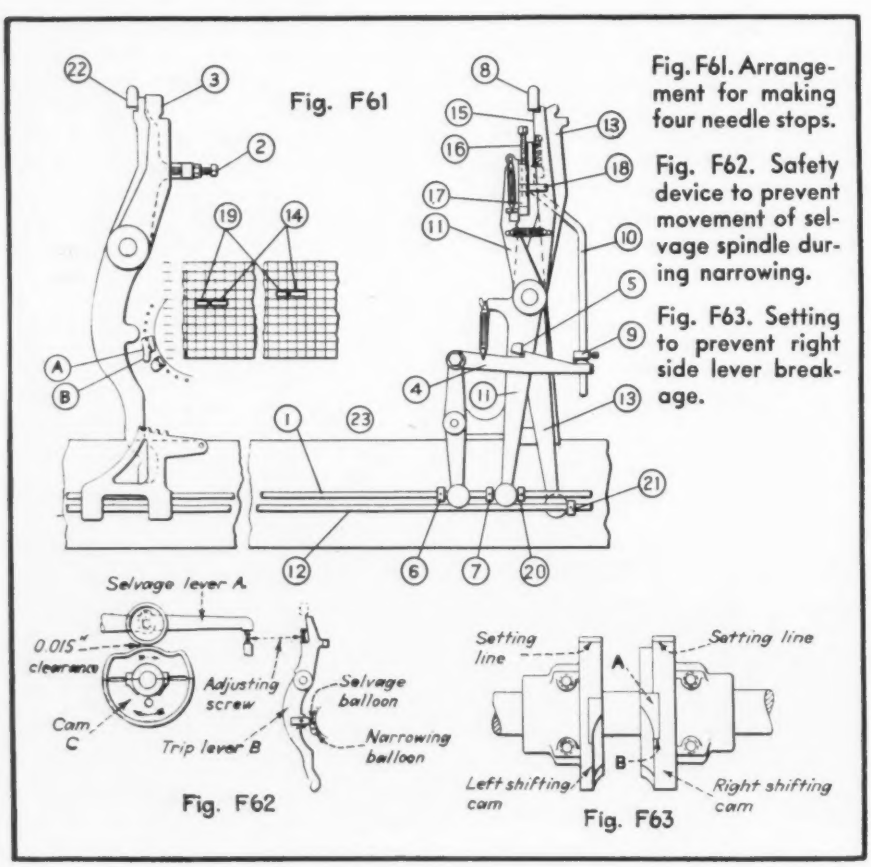


Fig. F61. Arrangement for making four needle stops.

Fig. F62. Safety device to prevent movement of selvage spindle during narrowing.

Fig. F63. Setting to prevent right side lever breakage.

RIGHT SIDE LEVER BREAKAGE: "When it becomes necessary to turn the narrowing chain back for any reason, it is essential that the machine be turned to the proper position before moving the chain; otherwise breakage of the right side selvage lever may occur when the machine is started. This will happen if the machine is stopped at a point where the selvage lever is just ready to drop into the hollow of its cam. When in this position, both selvage pawls will be engaged in the ratchets; and since it is impossible to have the pawl controlling lever follow the action quickly enough to keep one of the pawls out of engagement, breakage of the lever occurs when the machine is started.

"To overcome this difficulty and to make it unnecessary to supply any so-called safety device to this lever, it is only necessary that the machine be turned to the following position before racking back the narrowing chain at any time.

"Turn the machine until the pointer on the chain motion bracket coincides with the bottom edge of steel-piece *A* Fig. F 63 on the right shifting cam. This point is indicated at *B*."

TEXTILE EQUIPMENT NEWS

Electronic Timer for Shear

An electronic timer device developed by Curtis & Marble Machine Co., Worcester, Mass., replaces the mechanical or rotary pin type timer used on shears to prevent seams from being cut. Those shears made by this company of the CMR type, using mechanical means for the passing of seams, may be changed advantageously to use this electrical device. Aside from giving more accurate control, two chain drives and shafts along with other mechanical parts are eliminated by this change-over.

The electrical control apparatus detects seams and other obstructions on the cloth as it approaches the revolvers. When the obstruction reaches a predetermined distance from the first revolver, and this distance may be varied for different types of fabrics, the electronic control causes the revolver motor to operate in a reverse direction. Obstructions will then pass between the ledge blade and the revolver without catching or cutting the cloth. The motors driving the rotators continue to revolve in a reverse direction until the obstruction has passed the last revolver. If two obstructions are located in the goods closer together that the distance between the front and back revolvers, the electronic timer will reverse the direction of the motors of the revolvers and they will so continue to operate until the last obstruction cleared the last revolver.

Operating on 110 volt current, the electronic timer consists of a magnetic reversing switch controlling the revolvers and a single pole relay for maintaining the pilot circuit in the switch. Stop-and-start push button stations are located at all points from which it is desirable to control the revolver motors. An electronic unit controls the time that the revolvers are reversed and operates in connection with a seam detector or trip switch. A hand switch and pilot light is provided for controlling and indicating the 110-volt current used to operate the timer.

The trip switch is located on the right, bottom rail of the shear frame. It consists of a single pole, double throw micro-switch which is operated by an adjustable finger on the swing of the detector bar and is held in a closed position by a weighted, swinging member of the seam detector unit. The adjustable finger contains a setscrew which rests against the spring leaf of the switch. This setscrew is so adjusted that, with the cloth in the shear, the switch is held in a closed position. If a seam passing through the machine trips the switch, it will open and bring the electronic timer into play, causing the revolvers to be reversed. However, the reversal will not be instantaneous as the timing unit may be adjusted for any time lag desired; that is, cause the revolvers to reverse when the seam is a predetermined distance from the ledger blade. By changing the time lag, the distance between the seam and the point where the revolvers begin to reverse may be varied, according to the speed of the cloth.

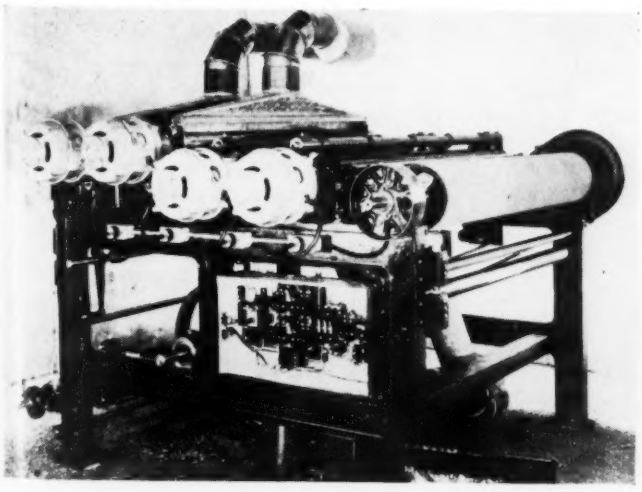
The front of the timing unit contains a pointer and a dial graduated from 1 to 10. Mounted on the front of the timing unit in clips is a small porcelain tube which is marked "5 seconds."

With the pointer turned clockwise to point 10 on the dial, the timer will give a 5-sec. timing interval, and this is the maximum possible with a 5-sec. porcelain tube. By turning the pointer counter-clockwise, the timing interval is shortened proportionately to the dial reading; i.e., a pointer reading of 5 will give a time interval one half as long as the maximum, or 2½ sec. A dial reading of between 4 and 5 has been found in practice to be about right for ordinary cloth speeds. A longer interval will leave too much unsheared cloth and a shorter interval might cause the seam to cut in the last revolver.

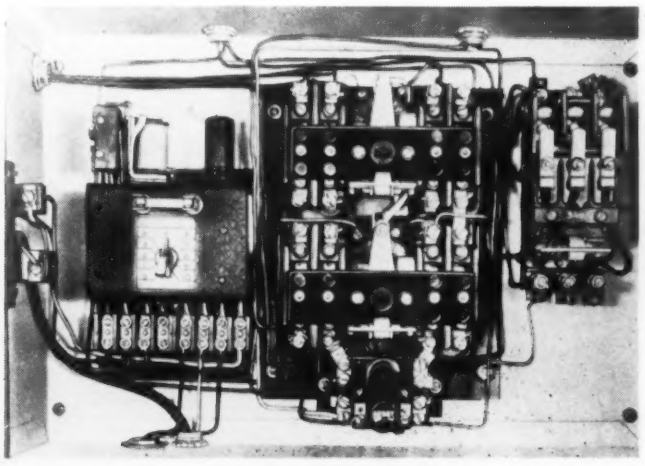
The radio tube used in the electronic control is of an ordinary type obtainable at any radio supply house.

Plastic Thread Accumulators

Crystal-clear plastic thread accumulators are being used on the S-5 series of Crompton & Knowles looms as a



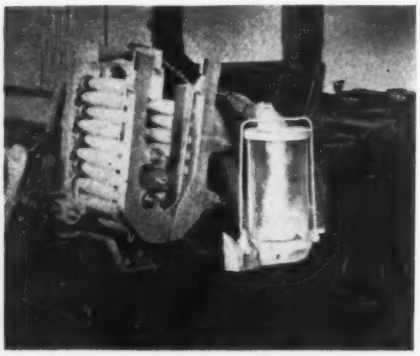
Curtis & Marble type CMR shear with electronic timer control attached. Cover has been removed from unit.



Electronic timer control developed to prevent shears from cutting cloth seams is shown in detail.

part of the vacuum thread control unit, according to Plastics Dept. of E. I. du Pont de Nemours & Co., Wilmington, Del.

Lucite tubing in the correct diameter and wall thickness is used because it has the required toughness and



Plastic thread accumulator enclosures (Plastics Dept. of E. I. du Pont de Nemours & Co.)

transparency to enable the operator to determine when it should be cleaned. It is stated that use of these plastic thread accumulators reduces breakage and, at the same time, permits the operator a full view of the contents.

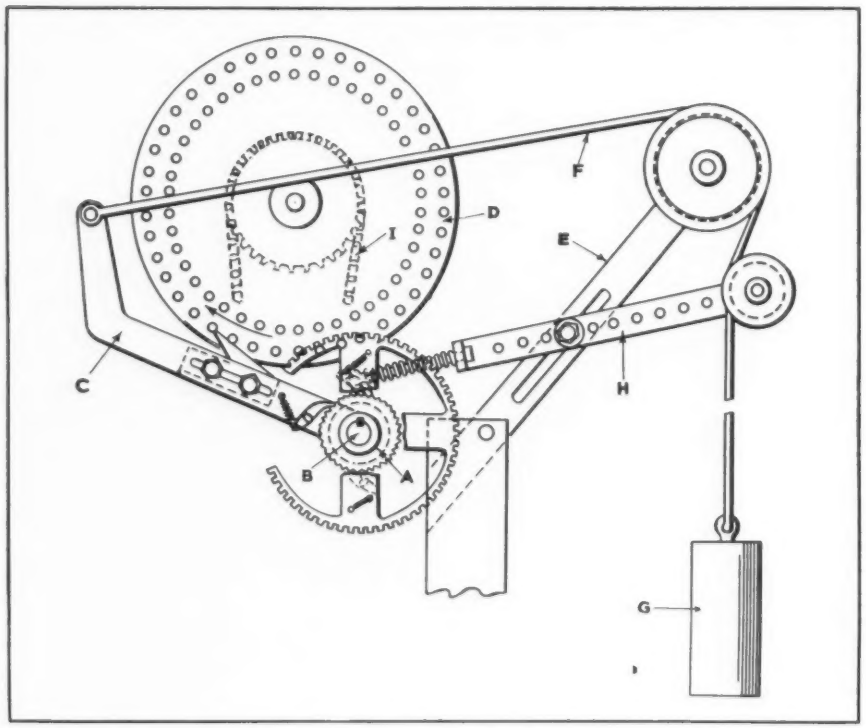
Slubbing Attachment

An improved slubbing attachment for use in connection with spinning or roving frames has been announced by George Partington, 454 Smithfield Ave., Pawtucket, R. I. One New England mill has been licensed to use the attachment and during the last two years has employed it in the manufacture of approximately 1,000,000 lb. of novelty yarns of the doupioni type. Mr. Partington plans now to grant additional licenses to manufacturers of other types of yarn. The attachment can be used with either long-staple or short-staple fibers or with a combination of both long- and short-staple fibers.

Essentially, the attachment consists of mechanisms for rotating certain of the drawing rolls of spinning or roving frames and varying the speed of rotation of certain of the rolls intermittently and irregularly to form slubs of different lengths and thicknesses in the yarn at irregular spaces from one another. The principal elements of the mechanism for controlling the operation of the drawing rolls include a double ratchet member, *A* in the accompanying sketch keyed to the bottom-roll shaft *B*; a slub control arm *C*; a pattern-control disk *D*; a pulley-supporting arm *E*; a flexible chain or strap *F* passing over the pulley and having a weight *G* suspended at the free end; a buffer arm *H*; a sprocket chain *I* which is driven from a mutilated sprocket wheel; and a dog mechanism.

When the drawing rolls are suddenly speeded up by the over-running of the ratchet as operated by the control arm, yarn sections of greater or less length pass through the rolls without being completely drawn out. This forms slubs of various thicknesses and lengths, dependent on the degree and extent of the accelerated movement. The irregular positioning of the slubs in the yarn is brought about by irregularities in the operation of the control arm and pattern control disk. This irregular operation can be varied by increasing or decreasing the weight *G*, changing the positions of the supporting arm and buffer arm, changing the number and position of pins in the pattern control disk, and changing the position and number of teeth in the mutilated sprocket wheel. The dog mechanism changes the movement of the sprocket chain during its travel and thus provides an additional means for imparting irregular movement to the disk.

In a modified form the attachment can be used for forming slubs in accordance with any desired pattern arrangement or recurring order.



Slubbing mechanism (Partington)

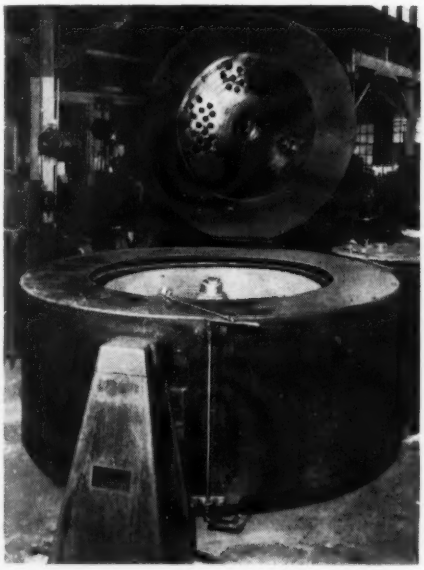
COMPENSATOR GATE FOR RANGE OPERATION

Control of variable speed units so as to synchronize cloth speeds between two machines in range operation is the purpose of this self-contained compensator gate developed by Birch Brothers, Inc., Somerville, Mass.

Useful Accessories For Textile Mills

Reinforced V-belts are now being used in certain installations and it is stated that this type of belt has greater horsepower capacity, increased tensile

F. C. HUYCK INSTALLS GIANT CENTRIFUGAL



F. C. HUYCK & SONS, Rensselaer, N. Y., has recently installed a giant centrifugal for use in drying paper-mill felts. Built by the Tolhurst Centrifugal Division, American Machine & Metals, Inc., East Moline, Ill., the centrifugal—which is one of the largest ever constructed—is 96 in. in diameter, has 1332 cu. in capacity, a rim speed of 121 miles per hr., and exerts a centrifugal force 218 times gravity.

strength and low stretch. These V-belts, manufactured by B. F. Goodrich Co., Akron, Ohio, are in two types, a cable cord construction and a grommet construction which incorporates a wire cord placed in the center of a cotton or rayon grommet.

Fluorescent lighting fixtures employing a new method of ballasting to give positive, instantaneous starting are now available for industrial plant lighting applications. With this method, the lamps come on fully at the turn of the switch just as in the case of incandescent lighting. The new fixtures were developed by R & Wiley, Inc., Buffalo, N. Y.

An arc welding electrode, designed to add still more speed to arc welding, has been announced by Lincoln Electric Co., Cleveland, Ohio. The new rod, "Fleetweld 11" is not only a fast flowing electrode, but gives deeper penetration of metal into the root of the joint.

Porcelain enameled high-bay reflector for general lighting of medium and low bay areas is being offered by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. This new line is designed for either incandescent or high intensity mercury lamps and is available with either the Locktite two piece quick detachable construction or one piece type for conduit or outlet box mounting.

Mill Maintenance Section

Spindle Care and Maintenance

"Keep 'em Running" is the slogan that The Atwood Machine Co. has adapted in a recent issue of *The Atwood Twists*, a house organ of their publication, in connection with care and maintenance of Atwood spindles.

The spindles of an up-twister or a "5B" are essentially the heart of the machine. Not only do they always operate at high speeds, but there are, of course, 100 to 200 of them on each machine. Proper care and maintenance of the spindles is necessary for lasting economy and efficiency of operation. Reasonable precautions and periodic inspections will eliminate costly shutdowns and repairs. It is important that a high grade spindle oil, purchased from a reputable oil company should be used, and the oil level should be checked once in 30 days by examining a few spindles at random and by checking those spindles that are running the warmest. If well balanced bobbins are used, careful study has indicated that lubrication should not be required more often than once in 3 or 4 months.

For new spindles a 100-110 viscosity oil at 100° F., Saybolt is recommended. However, it must be remembered that as the upper bearing of the spindle wears, a heavier oil may be required to take up the space between the spindle and the bearing, otherwise, a vibrating spindle will result. If the spindles vibrate seriously, oil will be pumped from the step causing a dirty machine and excessive use of spindle oil. Lubrication engineers state that the consumption of oil per 100 spindles should not be over 1½ to 2 gal. per year. Oil consumption is an indication of proper or improper functioning of spindles.

Particular attention should be paid to the fit of the bobbin to the spindle. In many instances new spindles have been ruined with out-of-balance or loose fitting bobbins. It should be remembered that too much oil is of no advantage and does not help to prevent wear of the spindle. Too much oil simply results in an oily, greasy machine and increases the lubrication cost.

Once every year the spindles should be removed from the machine, and the steps flushed out with a special cleaner which any reputable oil company can furnish. Gages can be provided by the machine builder to regulate and control the proper oil level in the step when oiling.

How to Set Brush Holders

Brush holders must be set on direct current motors in such a manner as not to injure the brushes and the commutator. Instructions of such a nature have been issued for setting the radial type of holders by Century Electric Co.

Brush holders should be placed 90° apart, as illustrated in Fig. 1. A maximum clearance of $\frac{1}{16}$ in. is per-

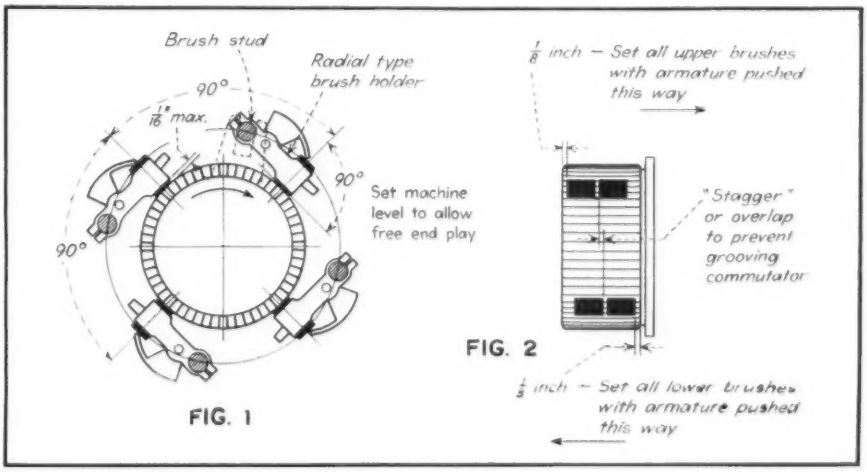

Brush stud
Radial type brush holder
90°
1/16" max.
90°
90°
Set machine level to allow free end play
FIG. 1
1/8 inch — Set all upper brushes with armature pushed this way
"Stagger" or overlap to prevent grooving commutator
FIG. 2
1/8 inch — Set all lower brushes with armature pushed this way

Fig. 1. Diagram showing position of brush holders.

Fig. 2. Position of brushes showing how they should overlap.

mitted between the holder and the commutator. Brushes should be staggered or overlapped so as to prevent grooving the commutator, Fig. 2.

Caring for Leather Belts

Leather belts must last because breakdowns may result in serious production losses, especially in those mills working on war orders. First, if long service is to be obtained, the belts must be installed correctly, as outlined in a folder published by the Power Transmission Council.

Alignment—Align shafting and pulleys correctly so that belt will not run off pulleys on one side or rub or climb flanged or step-cone pulleys.

Pulleys—See that pulleys are balanced and free from vibration.

Joint—Where possible use endless belts. Those of single-ply and of double-ply should be cut and cemented, as shown in Figs. 1 and 2. Where belt lacings or metal fasteners are used, be sure ends of belt are cut square and lacings or fasteners are installed in accordance with directions furnished by manufacturer.

Running Direction—Care should always be exercised to have the outside feather edge of the lap faces away from the direction in which the belt runs. This tends to protect the outside points of the lap if struck by guards, guides or shifters or from being opened up due to windage. On single-ply belts the grain side should be next to pulley.

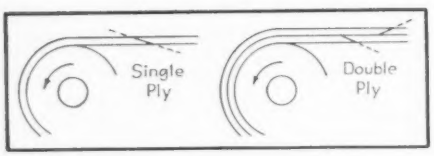


Fig. 1. Fig. 2.

Putting Belt on Pulleys—Use care in forcing an endless belt over the pulleys so as not to put a crook in it. Temporarily shorten the center distance between the pulleys by means of motor sliderails or loosening hanger bolts, etc.

Tension—For best results leather belting should be run with the least tension needed to transmit the load without slipping. If belt is run too slack it will slip, causing the surface to glaze and then crack and peel. If too tight, it will put unnecessary load on bearings.

Second, after being installed correctly, belts must be properly cared for as also outlined in the folder.

Alignment—Check drive alignment at least once a year.

Keep Belts Clean—To remove oil or grease from a belt give it a thorough scrubbing with a solution of one part carbon tetrachloride to three parts unleaded gasoline, using a stiff jute brush. If carbon tetrachloride is not available, the belt can be scrubbed or soaked in any of the cleaning fluids used by dry cleaning establishments. Because of fire hazards, cleaning and soaking should always be done in an open space or where there is plenty of ventilation.

Belt Dressing—Use a belt dressing approved by the belt manufacturer and designed to supply the necessary currier's oils which may have been lost in use or during cleaning.

Fasteners—Renew worn fasteners or lacings before they cause breakage or tearing. Use lacings and fasteners of the size recommended by the manufacturer and install according to his directions.

Laps—If cemented laps show signs of opening, stick them down immediately using a belt cement approved by the belt manufacturer. Apply the cement carefully, following instructions furnished.

Care of Your Rope

War in the Pacific cut off the supply of Manila fiber from the Philippines for manufacture into rope for civilian purposes. Sisal rope is being used as a substitute for Manila, but it has about 80% the tensile strength of genuine Manila rope, as pointed out in a recent issue of *Dutch Boy Painter*, published by National Lead Co. Ropes must be protected and inspected carefully to prolong their life as they are difficult to obtain. The following procedure has been suggested in the inspection of rope:

1. Look for abrasions and broken fibers on the outside.
2. Inspect the inner fibers by unlaying the rope in several places. If the inner yarns are bright, clear and unspotted, the rope strength has been preserved to a large degree.
3. Unwind from the rope a piece of yarn eight inches long and break it with your hands. If the yarn breaks with little effort, your rope is unsafe.
4. Rope used around acid or caustic should be inspected frequently. If black or rusty-brown spots are noted, test the fibers as described in paragraph 3, and discard all rope in which the fibers fail.
5. Rope that has lost its feel of pliability or stretch or in which the fibers have lost their luster and appear dry and brittle, should be viewed with suspicion and never used on scaffolding where there is a possibility of injury to workers or damage to property.

New Dyes and Chemicals

Durable Water Repellent

Development of a durable type of water repellent finish has been announced by L. Sonneborn Sons, Inc., 88 Lexington Ave., New York. The new product, known as Durapel, is the result of three years' research. It is applicable to cotton, wool, rayon, and mixtures.

Primary Alcohol

Trimethylcyclohexanol, a cyclic primary alcohol has been made available in limited quantities Carbide & Carbon Chemicals Corp., 30 East 42nd St., New York. Trimethylcyclohexanol boils at 198°C. and melts at 35.7°C. Since this is about room temperature, the product may be a liquid or solid. It is practically insoluble in water, but soluble in most organic solvents, hydrocarbons, and oils. As a mutual solvent and coupling agent for many otherwise immiscible organic chemicals, it can be employed in place of cresylic acid, cyclohexanol, and cyclohexanone. It is believed that trimethycyclohexanol should prove useful as an anti-foaming agent in the manufacture of textile soaps, and in making plasticizers, xanthates, and wetting agents.

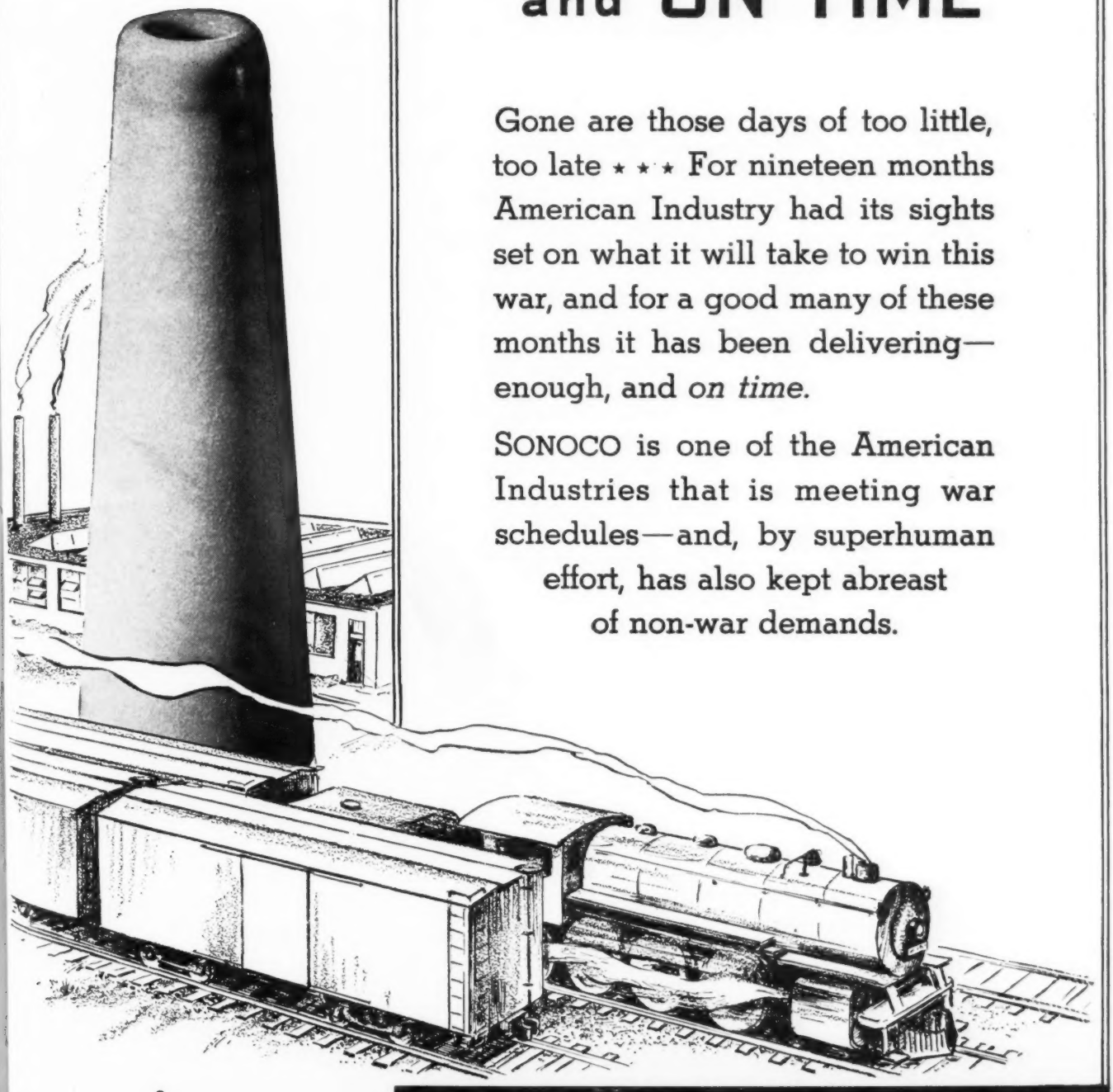
High-Boiling Hydrocarbon Oil

Development of a clear, mobile, high-boiling hydrocarbon oil which is expected to have several applications in the textile industry has been announced by Monsanto Chemical Co., 1712 South Second St., St. Louis, Mo. The new product, known as HB-40, is an almost colorless, oily liquid, relatively stable to heat, acids, and alkalies. Distillation range is 347 to 421°C. It is insoluble in water, but is miscible in all proportions with a number of solvents and oils. It is compatible in various proportions

ENOUGH
and ON TIME

Gone are those days of too little, too late * * * For nineteen months American Industry had its sights set on what it will take to win this war, and for a good many of these months it has been delivering—enough, and *on time.*

SONOCO is one of the American Industries that is meeting war schedules—and, by superhuman effort, has also kept abreast of non-war demands.



sonoco
SERVES THE WORLD
PAPER CARRIERS

SONOCO MAKES *EVERYTHING* IN *PAPER CARRIERS*

SONOCO PRODUCTS COMPANY

BRANTFORD ONT. | HARTSVILLE S. C. | MYSTIC CONN.

DEPENDABLE SOURCE OF SUPPLY

with ethyl cellulose, cellulose acetate, and polystyrene. One suggested use is as a plasticizer for vinyl resins. Among other possible uses are: (1) as a protector for metal parts against corrosion, especially where both a lubricant and corrosion-resistant oil are desired; (2) as a lubricant for machinery where the absence of gum formation is of prime importance; (3) as a textile lubricant and softener, in particular for rayon and wool goods; (4) in combination with sulphonated oils, or Santomerse, or sulphonated HB-40, as a dye assistant; (5) as a constituent of detergent formulations; (6) as a plasticizer for synthetic resins and plastics; and (7) as a solvent where low volatility and low flammability are essential or desirable.

New Publications

A Post War "Composite" Economy

ECONOMIC UNION AND DURABLE PEACE, by Otto Tod Mallery: Harper & Brothers, New York; $2.00.

The United States has tried isolationism. "If we should try it again, we should be intrusting ourselves to the same unmanageable raft . . . break upon the same rocky reef . . . be mercilessly pounded by the mighty waves of war."

Well-founded mutual aid, "economic union," whereby tariff barriers and discriminatory trade practices are eliminated for the common interest of a group of nations, is the main theme of Mr. Mallery's illuminating and thought-provoking treatise.

Mr. Mallery bases his theory of economic union on the Hull reciprocal trade agreement program and the present initiative of our Government to "further the enjoyment by all States . . . of 'access on equal terms' to the trade and raw materials of the world . . ." (from point 4 of the Atlantic Charter).

Among the more challenging pages of the book are those devoted to the contrast between economic imperialism and Economic Union and to the thought that we may already be trapped on the road that leads to economic empire.

As an American—even as one stirs Cuban sugar into Brazilian coffee supped from an English cup and stirred with a Danish spoon—one owes it to himself, his country and his job to read this and other books on like subjects. They will make all of us think about *how* more Indian cotton, Irish flax, more Australian wool and twice as much silk as China and Japan sent us before might (perhaps will) affect the teeming industry of which we are a part!

Cellulose and Its Derivatives

CELLULOSE CHEMISTRY; Mark Plunguian (1943); Chemical Publishing Co., 234 King St., Brooklyn, N. Y.; $2.25.

Packed into this little book less than 100 pages is a brief, but comprehensive outline of modern cellulose chemistry. It will be welcomed by textile chemists and by other textile men who wish to obtain a clear insight into the properties and reactions of cellulose and its derivatives. Among the phases discussed are microstructure of cotton and wood fibers; isolation and purification of cellulose; and preparation and properties of modified cellulose and cellulose derivatives, including regenerated cellulose, cellulose acetate, cellulose formate, methyl cellulose, etc. Other subjects considered include the constitution and micellar structure of cellulose.

Rights and Responsibilities Of Employers and Employees

THE LABOR RELATIONS ACT IN THE COURTS; Herbert O. Eby (1943); Harper & Bros., New York; $3.50.

It is of vital importance for employers to understand their rights and responsibilities and the rights and responsibilities of their employees under the National Labor Relations Act. This book, consisting of a digest and interpretation of court decisions rendered since the Act was declared constitutional in 1937, gives a clear idea of those rights and responsibilities and should prove of inestimable value to executives handling labor matters. Among the subjects considered are collective bargaining, company unions, closed shops, the check-off, rights of strikers, free speech, coercion, pickets, sit-down strikes, and lock-outs. The material is classified and arranged in such a way as to permit quick reference to any of the phases of the subject discussed.

New Cotton Year Book

COTTON YEAR BOOK of New York Cotton Exchange, New York; 120 pp.

The 15th Cotton Year Book issued by the New York Cotton Exchange contains such of those series of statistics from the 14th edition as are still available extended to cover the 1941-1942 cotton season. The various sections cover cotton production, movement, consumption, stocks, supply and distribution, prices of cotton, yarn and cloth, etc.

The book has been compiled under the direction of Elmer S. Bonner, director of the Exchange Service Bureau.

Other Publications of Interest to Textile Men

METHODS OF ANALYSIS AND OF REPORTING FIBER COMPOSITION OF TEXTILE PRODUCTS; 2nd Edition (1943); U. S. Government Printing Office, Washington, D. C.; 10c. This pamphlet comprises Commercial Standard CS65-43, and supersedes CS65-38. Its purpose is to provide standard methods for the quantitative analysis of finished products containing cotton, rayon, silk, or wool fiber, and of reporting on same.

1942 BOOK OF A.S.T.M. STANDARDS—Part III Nonmetallic Materials General; American Society for Testing Materials, Philadelphia; $9. Contains standards and test methods pertaining to textiles, fuels, petroleum products, rubber, soaps and detergents, paper, plastics, water, electrical insulating materials, general testing methods, and thermometers.

PROTECTIVE LIGHTING FOR INDUSTRIAL PROPERTIES; American Standards Association, 29 West 39th St., New York; 50c. A war standard intended as a guide for outdoor protective lighting to help provide protection against theft and sabotage.

NATURAL AND SYNTHETIC HIGH POLYMERS; Kurt H. Keyer; Interscience Publishers, Inc., 215 Fourth Ave., New York; $11. Of particular interest to workers in textile research are the sections devoted to a detailed discussion of cellulose—its constitution, structure, modes of reaction, compounds and derivatives; starch and related carbohydrates; and the proteins.

INDEX TO A.S.T.M. STANDARDS; American Society for Testing Materials, Philadelphia. List of all standards and tentative standards, methods of testing, definitions of terms, and charts and tables issued by the society.

Remember WOOL AND LEATHER ARE TWINS

WHEN IT COMES TO SELECTING THE RIGHT TEXTILE LEATHER FOR FRENCH COMB & GILL BOX APRONS

They are twins insofar as the basic problems involved in their manufacture are concerned. Both come from animals and therefore both are subject to those variations caused by the particular breed of the animal, the character of the land where he roamed, and even the amount of food he found to eat. These variables mean that both raw wool and raw leather must be selected by experts.

You can rely on BARNES, the TEXTILE leather house of long experience, to buy the right leather for use in your mill. Indeed, we buy only the finest Foreign and Premium Domestic Steer Hides. For aprons, we pay a cent or two extra to obtain hides free of grubs, barbed-wire scratches, slaughter cuts, and other imperfections which would pull up the wool. We insist on hides taken from steers killed in the best months of the year, avoiding in particular the manure burns of the winter months. And in these hides we carefully select and cut the correct part for the particular needs of your combs and gill boxes. As in the case of wool, the selection and purchase of the right raw materials is only half of the story. The correct processing is the other half. In our own tannery we apply the particular tanning which our research and years of experience have proved provides long life and good service with maximum economy.

Even thickness throughout, Minimum stretch, Run straight.

Strong, flexible waterproof lap of even thickness overall.

HENRY K. BARNES COMPANY • SALEM, MASSACHUSETTS

BARNES THE Textile Leather HOUSE

SINCE 1876

Where unusual knowledge of Leather is combined with long years of Textile experience
APRONS—BELTING • FLAT • ROUND • & ACCESSORIES—STRAPPING

News of Suppliers

American Moistening Co., Providence, R. I., has appointed Harry B. Bradford as vice-president and general manager to succeed the late Frederick J. Orme. Mr. Bradford is a graduate of the New Bedford (Mass.) Textile School, and in his early career was connected with the Westinghouse Air Brake and Chicago Pneumatic Tool companies. For the last 23 years he has been sales representative of the American Moistening Co. in New England.

Graton & Knight Co., Worcester, Mass., has appointed Charles E. Downing, Jr., as merchandising and advertising manager. He was formerly advertising manager of New England Coke Co., Boston. Mr. Downing will take over the merchandising, sales promotion and packaging activities previously handled by Ed Morris, now Mid-West district manager, and the advertising work which has been done under supervision of Tyler Cox, now assistant to the sales manager.

HORACE F. TAYLOR, soap technician for Swift & Co., Chicago, who has been appointed manager of that company's soap factory at East Cambridge, Mass. He has been with the company 42 years. In his new post he succeeds R. H. Hull, retired, in direct charge of the company's eastern plant which services and supplies soaps, detergents, and alkalies to the New England and east coast States. He will make his home in Boston.

DR. DONALD H. POWERS, who has joined the staff of Merrimac Division of Monsanto Chemical Co. as specialist on applications of Monsanto chemicals in the textile industry. Although his headquarters will be in Everett, Mass., Dr. Powers will serve as consultant for all Monsanto divisions on textile applications. He has had 14 years of experience in textile research and production. He was recently with Rohm & Haas.

Carrier Corp., Syracuse, N. Y. was host to representatives of 20 leading companies on May 6 and 7 who met at Carrier's invitation to participate in a Post War Planning Forum. Discussion of a round table nature was under the leadership of John M. Bickel, chairman of Carrier's post-war planning group.

FOXBORO (MASS.) CO. RECEIVES "E" AWARD—Color Guard raises the colors, opening the presentation exercises for the Army-Navy "E" Award on April 28. Directly beneath the company trademark stand Congressman Joseph W. Martin, Jr., and (with hat) Hon. Leverett Saltonstall, Governor of Massachusetts. Captain John J. Hyland represented the Navy, and Major Alex Smith, the Army.

HERBERT G. SCULL, lately engaged in dye investigations at the Eastman Kodak Co.'s Research Laboratories, who has now been appointed a technical representative of the Tennessee Eastman Corp., Kingsport, Tenn. He will render technical assistance to dyers, printers and finishers in the application of Eastman acetate dyestuffs, and in developing new and improved methods of finishing acetate materials.

Rodney Hunt Machine Co., Orange, Mass., has appointed Harold L. Belcher to take charge of engineering and development work for the Textile Machinery Division. He was lately with Proctor & Schwartz, Inc.

United States Testing Co., Inc., Hoboken, N. J., for the fifth consecutive year, will conduct its summer course in testing from July 12 to 30.

SKF Industries, Inc., Philadelphia, have appointed Robert R. Zisette as general sales manager. He has been with the company since 1921, lately as assistant sales manager.

Werner Textile Consultants has been established with offices at 60 East 42nd Street, New York, N. Y. The company is headed by Herbert L. Werner, formerly vice-president of Gherzi Textile Development Co., Zurich, Switzerland, and more recently president of Textile Industry Research, Inc., New York. The new company will specialize in improving working methods and operating conditions in spinning and weaving mills.

Johnston & Jennings Co., Cleveland, Ohio, has purchased the exclusive manufacturing and sales rights of Rusta-Restor, an electrical process for preventing rusting of water tanks, piping and similar steel structures.

Hercules Powder Co., Wilmington, Del., has been given the award for the best all-around use of business paper advertising in 1942 by the Chicago Business Papers Association at a joint meeting with the Chicago Federated Adver-

K. D. T's in the Jungle

OFFICIAL U. S. MARINE CORPS PHOTO

IN tropical jungles, on desert sands, in frigid lands, on the sea, in the air . . . wherever America's fighting men are relentlessly engaged in Axis annihilation, one will find Kaumagraph Dry Transfers.

Long before Pearl Harbor, Kaumagraph research was perfecting new transfers and new processes applicable to the rigid services demanded of textiles for war use.

These war products utilize Kaumagraph Dry Transfers in ways almost inconceivable to those accustomed to conventional identification. For the duration, these new K.D.T. developments must, of course, be confined to government products, but they will have important bearing on identification for post-war merchandising.

If you have a war product marking problem or if you are looking ahead to the business of peace-time, it will be profitable for you to send for a Kaumagraph Identification Man.

Identification Headquarters since 1902

KAUMAGRAPH
Wilmington, Delaware

Dry Transfers
Prestomarks
Embossed Seals
Lithographed packaging

New York Office, 16-22 E. 34th St. · · Representatives in Principal Textile Centers of the World

DR. THOMAS B. DORRIS, who has joined the staff of Franklin Research Co., Philadelphia. He comes from the engineering faculty of Manhattan College in New York.

tising Club. Theodore Marvin is Hercules advertising manager, and Fuller & Smith & Ross, Inc., New York, was the advertising agency for the winning campaign.

Sylvania Electric Products, Inc., Salem, Mass., on June 1 opened a new sales office in the Lincoln-Liberty Building, Broad and Chestnut Streets, Philadelphia. Garlan Morse was recently appointed manager of the Philadelphia Sales Division.

Acme Steel Co., Chicago, Riverdale plant won the first-place plaque in its group of the Steel Rolling and Fabricating Division safety competition sponsored by the Greater Chicago Safety Council.

TradeWays, Inc., New York, has developed a group of services related to foreman training. Included are built-to-order courses, development of case-studies recorded on phonograph records, a basic program based on prepared texts, and six talking slide-films by Dale Carnegie.

B. F. Goodrich Co., Akron, Ohio — Burton F. Stauffer, assistant general manager of the Industrial Products Sales division, celebrated his 50th anniversary with the company in April. As a boy of 14, he rolled bicycle tire wrappers as his first job.

Newark Paraffine & Parchment Paper Co., Newark, N. J., is this year marking its fortieth business anniversary. The company was founded in 1903 by Moritz Eisner. Today the business is carried on by William J. Eisner as president and Stanley J. Eisner as secretary and treasurer.

B. F. Goodrich Co., Akron, Ohio, has appointed Dr. Frank K. Schoenfeld as technical superintendent of its chemical division. Dr. Schoenfeld has been for several years in charge of the Koroseal research and development laboratories. In his new post he succeeds Dr. Robert V. Yohe, recently named manager of the company's Kentucky synthetic rubber plant.

H. K. Ferguson Co., New York, is celebrating the 25th anniversary of its founding. It was established in 1918 to offer "a complete industrial service," consisting of designing, building and equipping plants and factories ready for operations of their owners.

Stewart-Warner Corp., Chicago, has elected Albert R. Benson, previously assistant secretary and assistant treasurer, to be corporation secretary. He replaces Lynn A. Williams, Jr., who continues as vice-president.

Philco Corp., Philadelphia, has elected James T. Buckley, previously president, to the newly-created office of chairman of the company's executive committee, and has named John Ballantyne, lately vice-president in charge of operations, to be president of the company. Larry E. Gubb was reelected chairman of the board.

McAlear Mfg. Co., Chicago, valves, regulating and control equipment, has been acquired by interests controlling Climax Engineering Co., Clinton, Iowa, internal combustion engines, power units and generating sets. Edward F. Deacon, Climax president, also will be president and general manager of the McAlear company.

THOMAS J. ANDERSON, purchasing agent of Acme Steel Co., who was elected president of the Purchasing Agents' Association of Chicago on May 13.

C. D. BUCHER, now director of purchases for Dayton Rubber Mfg. Co.

DAVID S. HOPPING, formerly director of sales of the packaging division, who now heads the new sales development department established in the recent expansion program of the Celanese Celluloid Corp., resulting from the greatly increased application of Lumarith plastics.

Crocker-Wheeler Electric Mfg. Co., Ampere, N. J., has appointed W. L. Buchanan as field manager of renewal parts sales, with headquarters in the Chicago office.

Glen Bobbin Co., South Hiram, Maine, has acquired the business of the Kezar Falls (Maine) Bobbin Co., including machinery and tools. Harry A. Merrifield, formerly a partner in the Kezar Falls business is now with the Glen Bobbin Co. as manager of the finishing department.

National Starch Products, Inc., New York, has started up its newly reconstructed Indianapolis plant which will have production of an additional 100,000,000 lbs. of corn starch annually for the war effort.

Bristol Co., Waterbury, Conn., manufacturers of automatic control and recording instruments has appointed George R. Atkins as manager of the branch sales office and factory in Akron, Ohio.

Issues Booklet on Continuous Process

Industrial Rayon Corp. has recently issued for limited distribution a booklet entitled "Continuous Process and Its Contribution to Textile Progress." Described and illustrated are a number of important developments in continuous processing, including roller spinning, continuous carding, warping, mule spinning, cylinder printing, and Industrial's continuous process for spinning rayon. An interesting feature of the booklet is that it is bound with a rayon serge made of continuous-process yarn and is sewed with a special thread made with continuous-process, high-tenacity rayon yarn.

FULLERGRIPT Brushes keep flat card clothing clean

This is how a set of Fullergript Card Brush Refills looks ready to operate

When brush materials are gripped in Steel—like Fullergript—you have no worries about atmospheric temperatures affecting the brush materials or holding method—no tufts to fall out from splitting blocks or cement loosening.

That's why hundreds of flat cards in mills today use Fullergript, and are constantly replacing old tufted construction as fast as possible. These pre-formed spiral all-metal-back strips are easily attached to your present wood cores by following our simple directions.

Study the photograph above. There are longer bristles at each end of brush strip to clean the ends of the flats where there is no card clothing and keep them free of oil and lint. Our Brush construction packs material into a continuous, dense strip with no gaps to permit insufficient cleaning of the flat clothing.

Cleaner Top Flats Mean Better Carding

Many Carders started with trial sets of Brush Refills, and results meant building up to full installations over a period of excellent performance. These mills are not located in any one section of the country but spread over many States.

We are confident that if you will give them a trial on a few machines, you will want only Fullergript Brushes.

Here's the Installation Record of Six Mills in Six States. Names on Request.

STATE	TRIAL ORDER	MACHINES NOW EQUIPPED WITH FULLERGRIPT
Maine	6 sets	202 machines
Georgia	6 sets	114 machines
Massachusetts	2 sets	102 machines
South Carolina	2 sets	104 machines
Alabama	12 sets	139 machines
Rhode Island	6 sets	242 machines

Over 5000 Cotton Cards are in use today with Fullergript Replaceable Brush Strips. Why not investigate the economy and greater efficiency of these remarkable brushes?

(Card Room at Manville Jenckes Corporation. Full complement of our Brushes on all cards.)

The FULLER BRUSH Company

3594 MAIN ST., INDUSTRIAL DIVISION 8C, HARTFORD, CONN.

THIS IS NO. 39 OF A SERIES ON

GETTING THE MOST FROM WINDING

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

IMPROVED ROLLER BAIL PINEAPPLE CONE ATTACHMENT

(No. 50 Winder)

Two outstanding changes have been made recently in the No. 50 Roller Bail used for pineapple coning.

1. Thread Guide and Holder

An entirely new type of Thread Guide offers the advantages of being easy to thread, definitely holding the yarn in place, and being easy to replace.

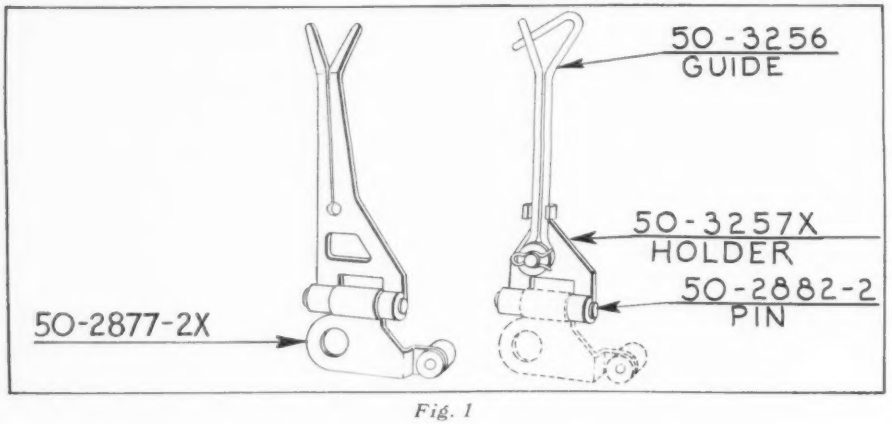


Fig. 1

This Guide (50-3256, Fig. 1) is made from music wire, chromium-plated. One leg is carried over and across the other leg to form an easy-threading retaining bail.

To accommodate this new type of Guide, the Thread Guide Holder has been redesigned. Its lower part is shaped quite like the old Thread Guide, and it is hinged in exactly the same way to the Bell Crank (50-2877-2X), but the upper part has two ears and a stud fixed in the side of the holder.

The two stems of the Thread Guide pass through the two ears, and the bottom of the Guide loops around the stud. A washer is then placed on the stud against the loop of the Guide, and both washer and Guide are locked into position by means of a small wire clip which snaps into the groove at the outer end of the stud.

Thus the Guide can be quickly and easily replaced with a pair of light pliers.

To convert from the old-style guide to the new, it is necessary to have a complete Guide Holder Assembly, consisting of Holder, Guide, Washer, Stud and Clip. New pins (50-2882-2) should be purchased at the same time, for it may be that the old pin will be damaged beyond repair when removed for releasing the old Guide. Once the change has been made, new Thread Guides can be applied with little effort.

2. Roller Bail Holder

The improved type of Roller Bail Holder (50-2922-10CAX, Fig. 2), offers convenience in lubrication.

The rear Ball Bearing is held in a fixed position, but at the outer end, the Bearing is secured by a clamp attached by a screw to the underside of the Holder. After loosening this screw, the front bearing can be drawn forward, clearing the Bail so that it can be easily lifted from the machine for lubrication.

When replacing these parts, care should be taken to see that the roll is mounted on the bearings with little or no side-play, and yet is free to rotate. If the roll binds and does not turn at its proper speed, it may shorten the traverse of the yarn, and may scuff the surface of the package.

The grooved section of the front bearing is positioned on top, making it easy to cut away any yarn or lint that may wrap around the bearing. At the inner end of the groove is a hole, serving as a vent for the lubricating element. The rear bearing has a similar hole and short groove. To lubricate, we recommend that both Roller Bearings be smeared every 2 or 3 weeks with vaseline or petrolatum.

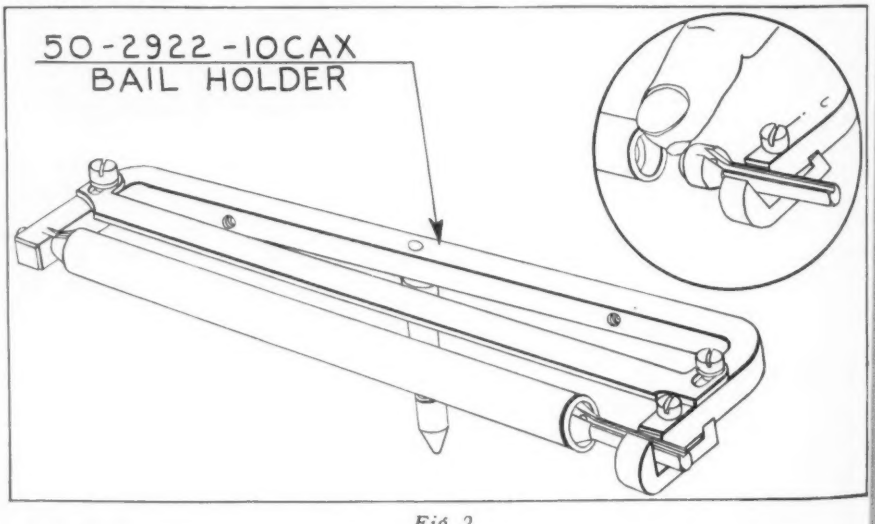


Fig. 2

See our Catalog in TEXTILE YEARBOOK
43-GMW-39

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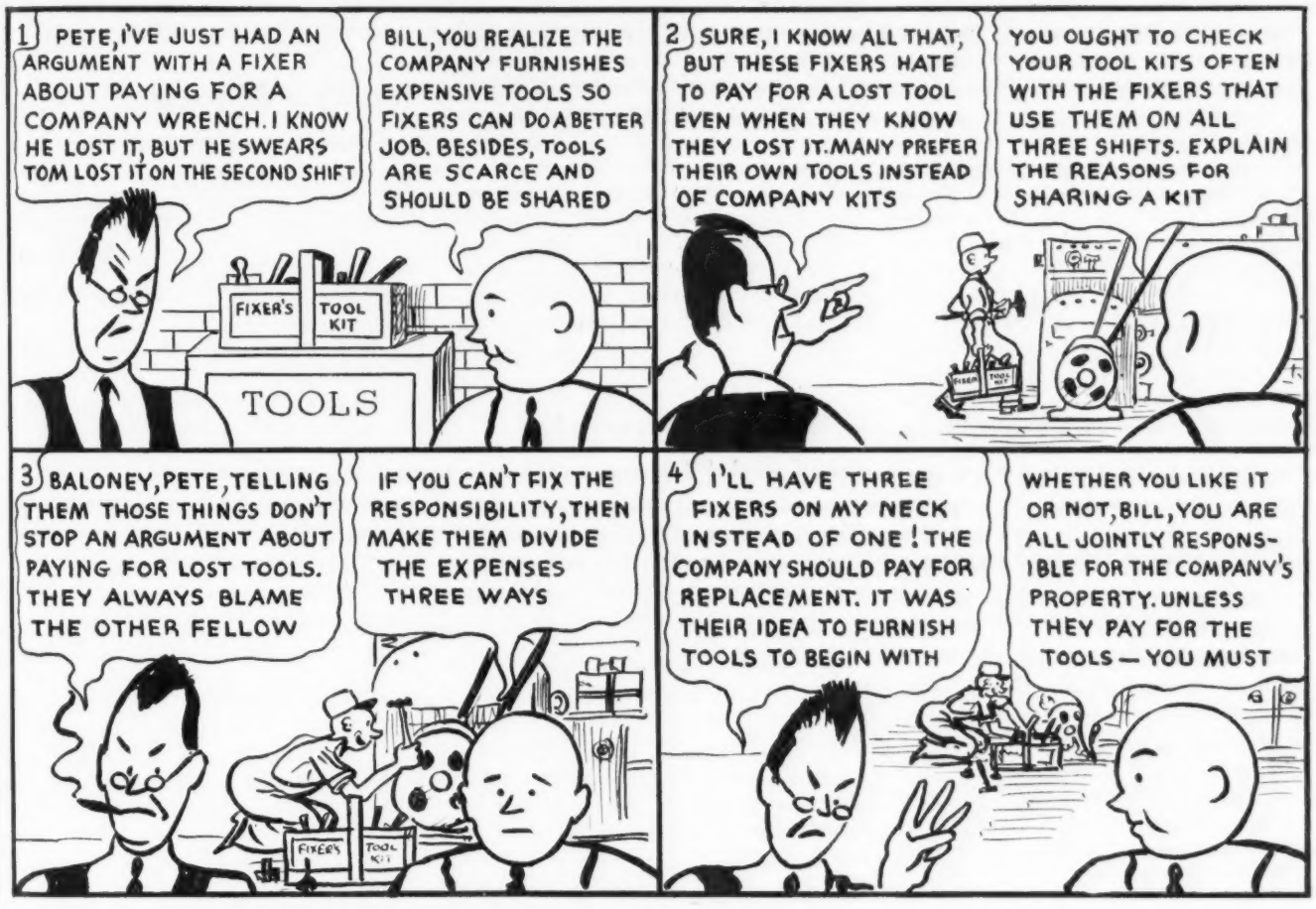
PETE & BILL

WHO SHOULD PAY FOR LOST TOOLS?


1 PETE, I'VE JUST HAD AN ARGUMENT WITH A FIXER ABOUT PAYING FOR A COMPANY WRENCH. I KNOW HE LOST IT, BUT HE SWEARS TOM LOST IT ON THE SECOND SHIFT
BILL, YOU REALIZE THE COMPANY FURNISHES EXPENSIVE TOOLS SO FIXERS CAN DO A BETTER JOB. BESIDES, TOOLS ARE SCARCE AND SHOULD BE SHARED
FIXER'S TOOL KIT
TOOLS
2 SURE, I KNOW ALL THAT, BUT THESE FIXERS HATE TO PAY FOR A LOST TOOL EVEN WHEN THEY KNOW THEY LOST IT. MANY PREFER THEIR OWN TOOLS INSTEAD OF COMPANY KITS
YOU OUGHT TO CHECK YOUR TOOL KITS OFTEN WITH THE FIXERS THAT USE THEM ON ALL THREE SHIFTS. EXPLAIN THE REASONS FOR SHARING A KIT
3 BALONEY, PETE, TELLING THEM THOSE THINGS DON'T STOP AN ARGUMENT ABOUT PAYING FOR LOST TOOLS. THEY ALWAYS BLAME THE OTHER FELLOW
IF YOU CAN'T FIX THE RESPONSIBILITY, THEN MAKE THEM DIVIDE THE EXPENSES THREE WAYS
FIXER'S TOOL KIT
4 I'LL HAVE THREE FIXERS ON MY NECK INSTEAD OF ONE! THE COMPANY SHOULD PAY FOR REPLACEMENT. IT WAS THEIR IDEA TO FURNISH TOOLS TO BEGIN WITH
WHETHER YOU LIKE IT OR NOT, BILL, YOU ARE ALL JOINTLY RESPONSIBLE FOR THE COMPANY'S PROPERTY. UNLESS THEY PAY FOR THE TOOLS — YOU MUST

Should responsibility for replacement of company tools be placed on a fixer?

Letters from Readers

Fixers Should Not Oil

"Who Should Oil Machinery"
Pete and Bill, April 1943

Dear Pete & Bill:

I am a loomfixer and therefore have many problems to cope with. My biggest problem is just what Pete & Bill were discussing. I am fixing in a mill which is running three shifts. I have complete charge of my shift and have to oil my set of looms. Here are the things I am up against:

1. The weavers can't look up to the fixer when they see him literally up to his neck in oil. It hurts their morale.

2. Often I start oiling a loom and someone comes after me with a job. I have either to leave that loom and come back later, or finish oiling and lose production on the loom which is down for repairs.

3. I am very busy during the first four hours, but when I know the oiling has to be done I let my other work go and if looms break down they have to wait till I get through oiling.

4. Time used for oiling, should be used walking around watching and listening for any trouble which if not checked immediately might result in a major breakdown.

5. I haven't a minute to fix up vibrators and other parts for spares. Instead I just wait till something breaks and then fix it up. All three of us fixers find this is so. It is like a car-owner who drives his car till it eventually stops on the road and costs him twice as much in the end.

DOUGLAS J. RUSSELL (*Ontario*)

Likes White Uniforms

"Suitable Dress for Women"
Pete & Bill, March 1943

Dear Pete & Bill:

A few weeks ago I received the TEXTILE WORLD, and as I was going in early that morning I took the book along with me. At lunch time I sat down to eat my lunch and the first thing I did was to read Mr. Lord's page and Mr. Woolf's page, then over to the Overseer's Corner. I had to

laugh to myself at Pete and Bill, and I liked Mattie.

Well, Pete and Bill, it seems that I have to agree with both of you. Yes, Mattie in her day was all right and very comfortable too. I am glad that Bill doesn't like girls in pants and sweaters, and I agree with him. Any man would forget where he was standing. I am glad Pete is with Bill on pants and sweaters, but Pete, I must say that the girl in picture No. 4 is very lovely to look at, and the men would like her better.

Now, on the other hand, Bill, I am with you on women in dresses and for my part I think there is nothing that looks better on them than a nice, white uniform. There is nothing I like better than to see my super or boss come through the shop in his nice white shirt and see all the help in white uniforms, and above all to see a nice clean mill where you can sit down and enjoy your meals in a comfortable place. That is what I would like if I was the owner of a textile mill.

E. T. (*N. Y.*)

Oiling Procedure Obvious

"Who Should Oil Machinery"
Pete and Bill, April 1943

Dear Pete & Bill:

It's hard to believe that among men who operate or supervise the operation of machinery there would be even one who would argue that proper lubrication is not among the most important if not the most important thing in the proper care of machinery.

Even those who have no working knowledge of machinery but have a fair imagination can foretell the condition of machinery that is not lubricated systematically or methodically. Since it is a foregone conclusion that lubrication is of prime importance, it naturally follows that someone must be invested with the responsibility of doing the lubricating.

The operator is primarily interested in production; the overseer is busy with quality and production; the fixer must see that the machines are kept running. Therefore each of these being preoccupied with important duties, it falls to an oiler to worry about lubrication. He has one job—one duty—one worry—LUBRICATION. This does away with passing-the-buck if a bearing burns out. No longer can it be said, "I thought *he* oiled the machine."

S. N. (*Pa.*)

Civility and Personality

Dear Pete & Bill:

I have been asked what is the most important factor in an overseers job? The most important thing in your job, is to learn how to get along with people and how to handle them. Your success and happiness in your job will depend on how well you learn this.

Don't expect too much of people—or too little. Be tolerant, sympathetic and cooperate with them when you can; keep your company manners on. This does not mean that you need be extraordinarily polite to them. Don't be partial. Don't expect other people to make your job a success, **don't lean** on them. Don't blame other people if it is a failure.

A large part of your success will depend on personality. This does not mean good looks, although good looks help. Often men with rough manners are respected because of their ability. But such ability must be very great to overcome the handicap of incivility.

Uncle Dave (*N. C.*)

Handling Absentees

"Handling Absentee Workers" May 1943

Dear Pete & Bill:

Oh, give us more foremen as wise as Pete
And absenteeism will meet defeat.
Pete's way isn't harsh words or "labor freeze"
For he'll get results with appeals like these—
"The assembly line's needless absentees
Are helping the cause of the Japanese."
"All man hours lost by industry's bench-men
Give aid and comfort to Axis henchmen."—
When you have made a man feel that his job
Is a personal crack at the Axis mob
There'll be no fear of "turn-out" reduction
For you'll get high and steady production,
And American workers—every one—
Will stick to the job till our fight is won!

Sincerely Yours,
Irene D. Williams (*Mass.*)

Memories of Old Man Carelessness—By Martha Pittenger

No. 6—RUBBERNECKS AND BOTTLENECKS

Right here, if I squint my eyes, I can read what happened to a young girl who let me turn her neck in every direction but the correct one. I not only branded her as a rubberneck, but I made a bottleneck out of her in the war effort.

I got her so used to looking backward at the person she was talking to as she walked off, that one day she walked right bang into a ladder and raised a knot on her head.

I was afraid the knot would make her forget about me. I became restless for, after all, a little bump on the head didn't seem fitting for my book of lost-time accidents. So a few days later I got pals with her again, and walked right beside her as she went through the hall into the card room. I told her someone back in the picker room wanted to see her. So she looked back and kept on walking. I knew that a lap-hauler was due any second, so I just watched for what I knew would take place—and it did. Along comes the steel lap-truck, and, before the hauler could stop, the truck hit her on the ankle with plenty of force and knocked her down. As a result she was off from her job about a week, hobbling about.

When she came back to work she was mad at me and we weren't pals any more. From then on she watched where she was going. The company lost a bottleneck and a rubberneck at the same time.

MILL MEN'S ROUND-TABLE

With meetings of operating executives curtailed because of the war, there is a definite need of a meeting place where mill men can discuss their problems among themselves. The Mill Men's Round Table is designed to supply this need. It is open to all readers for discussion of any and all subjects relating to mill management and operation. Bring your problems to the Round Table. Give other mill men the benefit of your experience, and get their ideas in return. To encourage frank and open expression of ideas and opinions on controversial subjects, names of contributors to the Round Table will not be published, but will be held confidential, if so requested. However, source of contributions must be identified as evidence of good faith and to permit payment for items published. Address contributions to: Editor Mill Men's Round Table, TEXTILE WORLD, *330 West 42nd St., New York. Opinions expressed in this department are those of the writers and do not necessarily reflect the opinions of* TEXTILE WORLD.

How to Get More Sliver Per Can?

There still seems to be a lot of disagreement as to the best method to use to get more card sliver into cans so as to secure longer doffing intervals. Some overseers tell me that by adding a spring tension on the calender rolls they have got as much as 40% increase in weight of sliver in the cans and have increased doffing time by 15 min. Other mill men say they don't like the spring tension because of greater power consumption at the card and because of lighter numbers and stretched sliver. One carder told me he is using smaller coils and trumpets, but another fellow said he stopped using them because the smaller coilers and trumpets stretched the roving and they were hard to adjust and besides they wore out too fast. I heard that some mills have tried reversing the direction of the cans, but don't know how much more sliver they were able to get in a can. I'd like to see this matter threshed out in TEXTILE WORLD.

P.A.H. (*S. C.*)

Labor-Management Committees and Absenteeism

A recent report of a study made into methods to control absenteeism indicated that one of the best controls was found in the form of labor-management committees or in a similar arrangement providing for a cooperative approach by both management and employees. I understand a number of textile plants have been operating with labor-management committees. It would be of great interest to me if I could learn from them just what their experience has been with such committees. Would you mind publishing this letter in the hope that it would draw out some thoughts on this?

B.D.A. (*Conn.*)

Controlling Stretch in Slashing Cotton Warps

The statement is often made that in slashing cotton warps stretch should be kept at a minimum and that the stretch should be kept uniform. What I would like to know is: What is meant by "minimum" and what is the best way of keeping stretch uniform? In one southern mill they are getting 1.8% stretch between the stretch control roll and the delivery roll. Is that much stretch OK or does it reduce the elasticity of the sized yarn enough to affect its weaving properties? A few years ago I read that a New England mill had developed a stretch control device for slashers which will reduce stretch to 1% and keep it at that point. On the other hand, some mill men say that stretch cannot be controlled uniformly at the slasher, because uneven stretch occurs before the yarn is slashed and there is no way to even it up on the slasher as far as individual ends are concerned. In other words, uneven stretch may be due to uneven tension in spinning, section beams out of line, etc. We all know that we get better weaving when the yarn has a high elasticity. Also we know that after slashing cotton yarn often has lost 30% or more of its elasticity. But does anybody know how much of the original elasticity of the yarn can be kept by controlling stretch? Also does anybody have any better way of controlling stretch than by use of positively driven section beams and a variable-speed control for the squeeze rolls and each cylinder? One more thing I would like to get some opinions on is what effect does the size formula have on stretch?

A.S.T. (*N. C.*)

An Idea on Knitted Underwear

One question which I have argued about for a considerable length of time is based on the fact that the outside, or cylinder, side of 1x1, circular, rib-knit underwear fabrics is generally used for the outside of garments. Why is this so? Is it simply because that side is naturally considered the outside of the fabric? In the case of fabrics made on loop-wheel, spring-needle machines, the inside of the tube is the face of the fabric, except in such fabrics as have a fancy yarn laid in and those which have a high-grade backing yarn laid on for napping. In such cases what is normally the back of the fabric is used for the face; and

they are cases of presenting the best appearance as the face of the fabric.

In the case of 1x1 rib fabrics made on circular rib knitting machines, whether latch needle or spring-needle rib, there is a decided difference in the appearances of the two sides of the fabrics. In my opinion the inside or dial side of rib-knit fabrics presents a much neater and more uniform appearance than the outside or cylinder side. In addition, the inside usually has a slightly harder feel than the cylinder side. The length of stich is drawn entirely by the outside needles, whether the machine is of the cylinder and dial type or one with an outside plate and an inside cylinder. In the drawing of the stitch by the outside needles the "creep" of the yarn through the hooks of the outside needles and over or around the inside needles usually kicks up a perceptible amount of fluff and lint. Such being the case, the outside of the fabric always presents a nappier appearance than the inside.

On the other hand, the inside needles simply form a loop in the yarn that is drawn over or around them. There is no "creep" of the yarn, excepting in cases in which the inside needles are drawn in or down deeply enough to rob the outside stitch. If, in such cases, creep does occur, any lint or fluff that is kicked up is buried in the fabric. In the forming of loops by the inside needles, the yarn on both sides of the hooks is subjected to a very nearly equal pull and there is little, if any, distortion of the stitch.

The dial stitch and the inside cylinder stitch is usually cast off some appreciable time after the outside needles have completed their stitch and have been released by the stitch-drawing cams. Because of this and because of the nearly equal pull on yarn on both sides of the hooks, the inside of 1x1, rib-knit underwear fabrics presents a smaller stitch, a more distinct wale, and a neater and more uniform appearance than the outside.

If such fabrics are to be napped, the outside is already partially napped; and there seems to be no good reason for tearing up the cleaner and more uniform side. If, in the case of one-course rayon stripes, the inside stitch is so small that the stripe does not show up with sufficient prominence, why not knit the rayon stripe on the dial needles only and make it more prominent? Even in cases of fabrics that are not napped the outside of the fabric has a softer feel for use next to the skin, while the harder inside stitch presents a better appearance for the outside of the garment.

All this seems reasonable unless there is some imperative reason, beyond my knowledge, that the outside of the fabric must be used for the outside of the garment. What do other knitters think?

Jerry Brown (*N. Y.*)

Preboarding Temperature for Acetate Hosiery

Recently we have started to manufacture acetate rayon full-fashioned hosiery and are doing our own dyeing. As we were advised by some people to keep the temperature of the scouring solution and dyebath at 165° F. in order to avoid injury to the acetate rayon, that is the temperature we are using. I understand, however, that dyers of acetate rayon piece goods use temperatures as high as 200° F. I should like to know first is there any danger in dyeing at 200° F., and if there isn't any danger is there any advantage in dyeing at that temperature. In other words, are best results obtained at 165° F. or 200° F. or at some other temperature?

At present we are preboarding at 200° F., although we have heard that in other plants preboarding is being carried out at various temperatures ranging from 190° F. to 210° F. I should like to know what is the highest temperature which can be used without injuring the hosiery and whether there is any advantage in using that temperature or can just as good results be obtained at a lower temperature. Finally, I should like to know whether it is better to let the stockings dry on the preboarding form or is it better to take them off wet and hang them in a drying cabinet to dry.

As acetate rayon hosiery is a comparatively new development, I feel certain there must be a lot of experimenting going on to find out the best method of dyeing and preboarding and get the ideas of other readers of TEXTILE WORLD on the points mentioned above.

J.C.C. (*Pa.*)

Training Loomfixers Quickly

Our mill, like many others, is facing a shortage of loomfixers. We have pretty well decided that we are going to train some women weavers to do loomfixing, but are having considerable controversy as to how to train them as quickly as possible. I made what I think is a practical suggestion, but the superintendent says nobody else has ever tried it and he doesn't think it will work.

I figure that under normal conditions it would take at least a year to teach anybody to become a loomfixer. It would take a good, intelligent weaver 8 to 10 weeks to learn to overhaul the transfer motion, 8 to 10 weeks for the stop motion, 8 to 10 weeks for the driving and shipping motions, 8 to 10 weeks for the lay motion, 7 or 8 weeks for the head motion, 5 or 6 weeks for the pick motion, and 2 or 3 weeks for the take-up and let-off motion.

What I suggested is that instead of training women weavers to be all-round loomfixers, we should have each one learn how to overhaul and adjust one motion. (Fixing the pick motion and take up and let off could be considered as one job.) For example, one group would be trained to overhaul the transfer motions, another group to overhaul the stop motions, etc.

At the end of two months, we would have a force of specialized fixers who would be able to do the overhauling and adjusting of individual motions. Whenever the second hand, who acts as head loomfixer in our mill, found that the head motion of a certain loom needed adjustment, he would assign one of the fixers who had been trained for that particular job. Or if it was the stop motion that needed attention, he would assign the job to one of the women who had been trained on that motion.

If anybody has ever tried out a similar plan, I would like to know how it worked out. Also if anybody has any definite opinions as to why it will or will not work I would like to get them.

G.E.B. (*Mass.*)

How to Carbonize

We have always used sulphuric acid for carbonizing, but are now wondering whether we should change to aluminum chloride. The superintendent of a nearby mill tells me that I am behind the times and that I should change to aluminum chloride, as it causes less chemical damage to the wool, and is easier to control. He says that a good many plants have adopted the aluminum chloride method and are having less trouble from streaky goods. However, other mill men tell me they don't believe it is worth while to change over, as it would increase carbonizing costs and would not give enough better results.

Before I decide whether to make any change I should like very much to get the opinions of some mill men who have used both methods as to which they prefer, everything considered. I would like to know about both raw stock and piece goods carbonizing.

G.E.S. (*Me.*)

QUESTIONS & ANSWERS

Weaving Army Overcoatings

Technical Editor:

Your article in the January issue on "Weaving O.D. Army Overcoatings" was very interesting and enlighting. The part concerning cloth compression was especially so and has prompted me to ask for more details on this phase.

How is the maximum (for good weaving) determined for warp and filling of a certain given fabric? Is there a formula that can be applied and is yarn count, which gives only weight of yarn, for a given number of yards, or vice versa, the only consideration? Must not diameter of a yarn be considered? (8900)

The author of the article on "Weaving Army Overcoatings" has replied to this inquiry as follows:

The writer prefers those formulas developed by Dr. Thomas Oliver, Principal of the Scottish Woolen Technical College, Galasshields, Scotland, who developed formulas for warp compression such as are applicable to all types of weaves. For example, starting at the tightest which is the plain weave, we have

2/1 Twill
2/2 Twill
2/2 Basket
3/3 Twill

In other words, there is a maximum for good weaving, such as can be determined by formulas developed by the above person. For a concrete example, note the following which was taken from your "Textile Mill Data Book."

"The following formula will be found an invaluable aid in obtaining the maximum loom setting; i.e., number of ends and picks for square cloths, as used in this instance:

$$\frac{\text{Diameters per inch} \times \text{threads in weave}}{\text{Threads in weave} + \text{intersections in weave}}$$

"This gives us the maximum number of threads which can be placed side by side in one inch.

"To find the approximate diameter of a given count of yarn extract the square root of the yards per pound and deduct 5% for silk, cotton, and linen yarns; 10% for worsted yarns; and 15% for woolen yarns.

"Example: Find the respective diameters of a 4-run woolen yarn and a single 25s worsted yarn.

4-run × 1600 yd. (standard number) equals 6400 yd.

Sq. rt. of 6400 equals 80

80 diameters per inch less 15% for woolen equals 68 threads

25s worsted × 560 equals 14,000 yd.

Sq. rt. of 14,000 equals 118

118 diameters per inch less 10% for worsted equals 106 threads

"To find the maximum setting for plain weave by the above formula, we proceed as follows:

4-run woolen equals $\frac{68 \times 2}{2 + 2}$ equals 34 ends and picks per inch

25s worsted equals $\frac{106 \times 2}{2 + 2}$ equals 53 ends and picks per inch."

Size of Hole in Rubberized Pickers

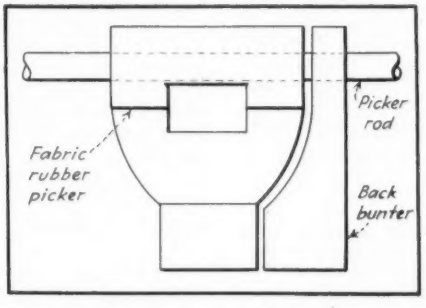
Technical Editor:

We recently changed from rawhide pickers to rubberized pickers on our looms. Our picking rods are 3/8 in. in diameter. The rawhide pickers used to be drilled 13/32 in. diameter to run on this rod. What size hole would be advisable to have in a rubberized picker to run on a 3/8 in. diameter picking rod? (8898)

The picker-rod hole in rubberized pickers should be 13/32 in. in diameter for a 3/8-in. picker. The hole in rubberized box-loom pickers can be slightly smaller in diameter than those in the rawhide pickers. Nevertheless, it is not advisable to have the hole too small, as it cannot be enlarged as readily as those in rawhide pickers. However, all that is necessary to order pickers with proper size hole is to state the diameter of the picker rod.

In using rubberized box-loom pickers, little, if any, lubricant should be used on the picker rod. The bushing in these pickers slides freely on a clean picker rod. Some loomfixers recommend no oil at all.

One important item in the successful use of rubberized box-loom pickers is the back bunter, shown in the accompanying sketch. These bunters should be carefully made so that they will contact both the head and the base of the picker. If not, the pickers have a tendency to break in the fabric close to the head. Rubberized box-loom pickers have broken after only 3 hr., because there was no back bunter contacting it at the head. That is, the back bunter contacted the base of the picker only, with no support behind the head at the impact of the incoming shuttle. On the other hand, rubberized pickers have been used for over 6 mos. and were still in fair condition. The back bunters as shown in the diagram are best ordered from the picker manufacturer, as in that way properly shaped back bunters can be secured. The back bunters should be made of the same rubberized fabric as that from which the pickers were produced and made by the same concern.



Showing back bunter in relation to fabric picker

Salt Damages Brick Wall in Dyehouse

Technical Editor:

A few years ago we built a new piece dyehouse adjoining our finishing department. When this plant was first put into operation, we put a salt bin in one corner of this red brick addition. This salt developed some chemical reaction to the brick and it has tended to eat away the cement, making a very bad, white, diseased-appearing area on the outside of the building. Of course as soon as we learned this, we separated the salt so it wouldn't touch the brick. Then we tried muriatic acid, washes, etc., but the disintegration continues. We shall appreciate any suggestion you can offer.

You do not state whether the "salt" is glauber salt which is used in large quantities in woolen and worsted piece dyehouses or common salt which is largely used in cotton dyehouses. In a large dyehouse for dyeing worsteds glauber salt has been in contact with inside brick walls for nearly 40 years and there has been no deterioration of either brick or mortar in all that time, except for a slight amount of erosion. By inside wall, is meant a wall between two rooms and not one that has a surface exposed to the outside air and temperatures.

On the other hand, there is in this same plant another dyehouse where glauber salt solutions are boiled up in aluminum kettles. The tanks are close to an outside brick wall. The hot solutions in the tanks frequently splash over and run down over the brick work. Action has been rapid and at times severe. Both brick and mortar have been disin-

FREE FOR THE ASKING

Readers interested in literature reviewed on this page may secure copies by writing to Textile World, 330 West 42nd St., New York, giving their company connection, title of item desired, and date of issue in which it was reviewed.

Textile mills operating on lend-lease and war-aid contracts will be interested in several technical bulletins recently published by Calco Chemical Division, American Cyanamid Co. Bulletin No. 679 covers the "Dyeing of War-Aid Olive Drab Worsted Knitting Yarn." Specifications PQD-250A, 251B and 253A are outlined along with the fastness requirements and the dyeing procedures by top and meta chrome methods. Bulletin No. 695 covers "Typical Shades and Patterns for the French North African Trade." Thirty-six suggested prints are reproduced in full color. Seventeen colors were used in printing this bulletin and typical formulas have been given. Prints wherever possible have been made to original size.

Improvements in opening room machinery are discussed in an article appearing in the March issue of *Saco-Lowell Bulletin*, published by Saco-Lowell Shops. Textile mill men will also be interested in reading about machinery installations of the Royal Cotton Mills, Canadian Cottons, Ltd., and Cramerton Mills.

"Yarns with a New Twist," is the title of an interesting article appearing in the May issue of *Esso Oilways*, published by Standard Oil Co. of N. J., of Pa., of La. and Colonial Beacon Oil Co. This article covers the throwing of rayon at Kahn & Feldman, Inc., and mentions briefly the oiling of rayon.

Synthetic detergents, emulsifying, wetting and dispersing agents are covered in an article entitled, "The Tritons," appearing in the May issue of *Rohm & Haas Reporter*, published by Rohm & Haas Co. This article deals with the wetting agents used in the textile industry, especially those used in connection with the dyeing of yarns and textile materials.

Regulation L215 referring to the sale and purchase of textile equipment is discussed in the March-April issue of *The Clothroom Spotlight*, published by Hermas Machine Co.

Painting factory floors to give more light is discussed in an article appearing in Vol. 4, No. 1 of *Paint Progress*, published by New Jersey Zinc Co. Included in this article is a table giving the percentage of light reflected by various colors used for interior painting. Another article that should interest textile mill executives is one dealing with the repainting of interiors of industrial water tanks.

Limiting of production and quality of cotton yarn by excessive twist in roving is explained in an article appearing in the April issue of *The Traveler*, published by Victor Ring Traveler Co. It is also pointed out in this article that in addition to producing a poor quality of yarn, excessive twist is also responsible for rapid wear on top rolls.

"Functions of Oil in Sizing Rayon Warps" is the title of an article appearing in the April issue of *Rayon Warp Sizing Specialist*, published by Charles B. Johnson Machine Works. A good oil, it is pointed out in the article, can prevent foaming in the size pan and has a wetting action often necessary to secure adequate deposit of a size film on the yarn.

War production data for textile mills whose machine shops are engaged in the manufacture of military equipment is contained in the May issue of *The Houghton Line*, published by E. F. Houghton & Co.

"Textiles in Armor," an article appearing in *The DuPont Magazine*, published by E. I. du Pont de Nemours & Co., points out the uses that the armed forces are making of cotton, rayon, asbestos, glass and other textiles coated or impregnated with cellulose nitrate, rubber, synthetic rubbers, or synthetic resin compositions. The article is well illustrated with photographs of many pieces of clothing and equipment employing special finishes.

"Balanced Lighting," is the title of a 12-page booklet issued by Fostoria Pressed Steel Corp. dealing with balanced lighting in industrial plants, and telling of the benefits received. This booklet describes how balanced lighting saves critical materials, saves power, workers' eyes, time and investment.

Corrosion-resistant tank linings of Resilon are described in bulletin 1502, issued by United States Stoneware Co. This bulletin mentions the physical and chemical characteristics of Resilon and illustrates numerous installations where it is used in handling acid and alkali baths.

Discussion of problems encountered in tenter frame drying is one of the many subjects contained in catalog No. 461, issued by B. F. Sturtevant Co. Also of interest to textile men are numerous installation photographs of tenter frame dryers, festoon dryers and slasher exhaust systems. Photographs of Sturtevant drying systems used in many other industries are also included in this catalog.

Electrolytic removal, or demineralizing water with an ion exchange process so as to produce water free from electrolytics, is discussed in a paper titled, "Demineralizing Solutions by a Two-Step Ion Exchange Process," by Howard L. Tiger and Sidney Sussman and which can be obtained from The Permutit Co. Textile finishers will be especially interested in obtaining this paper as it discusses an application of this process for demineralizing brackish waters and offers an economical method of demineralizing waters of high electrolytic content.

Centrifugal blowers and exhausters are described in bulletin No. 120-B-12, published by Roots Connersville Blower Corp. A portion of this bulletin is devoted to discussion of the operating characteristics of centrifugal blowers and exhausters and contains several different charts and curves, plotting known characteristics.

"Eyes for Industry," is the title of a 25-page booklet issued by General Radio Co., describing industrial applications of stroboscopes. Textile mill engineers will be very much interested in that section of the booklet dealing with the studies made on experimental looms operating at high speeds.

Selection and application of commonly used motor controls, in simplified form, is dealt with in a 16-page manual, GEA-4015, published by General Electric Co. The fundamentals of control, simple analysis of the functions of control and a discussion of how to select the correct control and choose between manual or magnetic types are covered in this manual.

Transmission and materials handling equipment is illustrated and described in catalog No. 850 offered by Link-Belt Co. Dimensions, weights, list prices and other pertinent data are given on chains, sprockets, silent and roller chain drives and various other items uses in power transmission and materials handling equipment.

Portable fluorescent lights are described in bulletin F-63, issued by DayBrite Lighting, Inc. This line of equipment is portable and may be used throughout the mill to act as a floodlight wherever needed.

"Modern Management Control," is the title of a booklet issued by Wolf Management Engineering Co. This booklet contains a discussion of modern management control procedure and should be of value to all textile executives, not only as an aid to war production but also as the first step to meet peacetime readjustment and competition.

Time-delay relays, their applications and construction for the closing and opening of a load circuit are discussed in Bulletin No. 800, issued by R. W. Cramer Co.

KINKS & SHORT-CUTS

A $25 WAR BOND FOR YOUR IDEA

A $25 War Bond will be awarded each month for the most useful "kink" published in this department. This contest is open to all readers of TEXTILE WORLD, and there is no limit to the number of entries any one person may make.

Contributions must be received not later than the last day of the month to be eligible for the award for the second succeeding month. Items may pertain to production methods, mill engineering, safety, cutting costs, improving quality, speeding up production; in brief, any little device, stunt, kink, or short-cut which you have tried out in your own mill and which you believe will be helpful to other mill men. The items should be short, preferably not over 300 words. Previously published material is not eligible for the award. Judges of the contest are the editors of TEXTILE WORLD.

TEXTILE WORLD shall have the right to publish any item submitted. Items which are published will be paid for at our regular rate for this type of matter with extra payment for appropriate sketches or photographs. The sketch you submit need not be a finished drawing.

Contributions should be addressed to: Technical Editor, TEXTILE WORLD, 330 West 42nd St., New York.

Determining and Recording Picker-Lap Weights

THIS MONTH'S PRIZE WINNER

Although many large mills have lap meters for measuring and recording yard weights of picker laps, many smaller mills still use the yard gate for measuring and make a tabulated list of the weight of every yard in the full lap. The method shown in the accompanying sketch will reduce the time required to detach the yard lengths and will furnish a graphical record of all variations in the yard weights and give a complete summary of all weight data.

The older method used one yard gate of the dimensions shown and this was placed on the lap as it was unrolled on the floor. It was a long and difficult job to tear off evenly each yard of lap, and there was much unavoidable waste made between the consecutive yards taken.

The new method uses two yard gates of the dimensions shown, and a length of doffer comb blade is attached to one edge of the wooden frame as shown in the drawing. A handle is also added to the center of the cross-piece to make the gate easier to pick up and move. The teeth on the doffer comb penetrate the lap on the floor, and permit an even edge to be obtained when tearing.

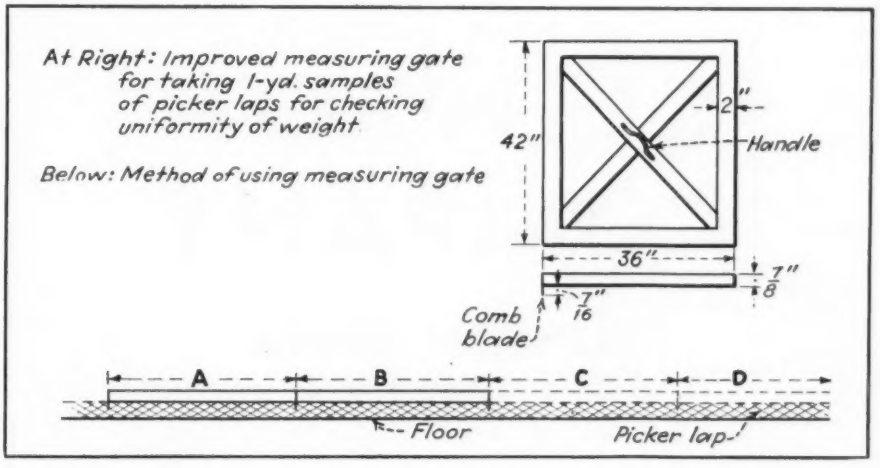
The procedure when using is as follows. The first gate is placed on lap as shown at *A* with doffer comb at left edge of gate. The second gate is placed in position at *B* with comb on left edge. The lap extending beyond the left edge of *A* is torn off evenly across the lap where the comb penetrates the lap.

Gate 1 is then removed and placed in position *C* shown by dotted lines. This leaves an exact yard of lap extending to the left of Gate 2. This is removed and folded up for weighing. Gate 2 is removed and placed in position *D* to right of position *C* shown by dotted lines. The removal of Gate 2 leaves a yard extending beyond *C* to left. This is removed and folded. This procedure is repeated until the entire lap is torn into yard lengths.

It can be readily seen that this method reduces the work and time required to make yard lengths of picker laps. It gives much more accurate results because the edges are clean and straight. There is no waste between yards taken, because the right-hand edge of one yard is also the left-hand edge of the following yard.

The method shown of recording picker-lap weights on graph paper gives a true picture of yard variations, is much easier to summarize, and is a convenient size (8x5 in.) for filing. The weight of each yard as found is marked in its proper position on chart, and these points are all connected together to make a complete graph as shown.

All required information concerning



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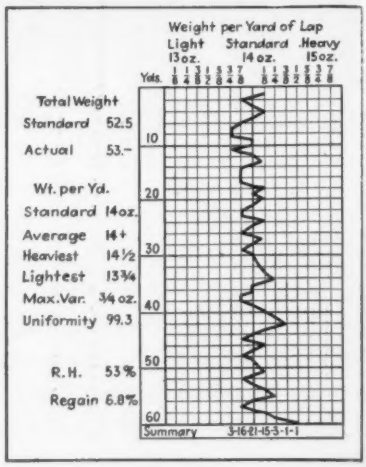

Method of recording picker-lap weights on graph paper.

the lap is shown at the left of the graph. The heading marked "uniformity" is an important feature and gives a clear picture of the actual uniformity of the lap as a whole. This factor is obtained by taking the small figures in the summary at the bottom of the graph and multiplying them by the number of eighths of an ounce by which they vary from the standard weight per yard. The sum of these products is multiplied by 0.89, which is the percentage relationship between ⅛ oz. and 14 oz. The product thus obtained is divided by 60 (total number of yards weighed) and this quotient is subtracted from 100 which represents the rating of a yard which weighs exactly standard, or 14 oz.

The actual mathematical operation is as follows.

$$(3 \times 2) + (16 \times 1) + (15 \times 1) + (3 \times 2) + (1 \times 3) + (1 \times 4) = 50$$

$$(3 \times 2) + (16 \times 1) + (21 \times 0) + (15 \times 1) + (3 \times 2) + (1 \times 3) + (1 \times 4) = 50$$

$$100 - \frac{50 \times 0.89}{60} = 99.3 = \text{Index of uniformity.}$$

It will be found that this index is a better indication of lap uniformity than any other factor that can be easily and quickly obtained. It permits standards of lap uniformity to be established and makes comparison between laps easy and exact. E. H. Helliwell, *Salem, Mass.*

For Polishing Shuttles

To obtain smooth and polished surfaces on shuttles without the use of shellac, use small polishing pads of fine steel wool. These pads are well-known kitchen accessories and can be purchased from the five-and-ten, or local hardware stores. First remove rough

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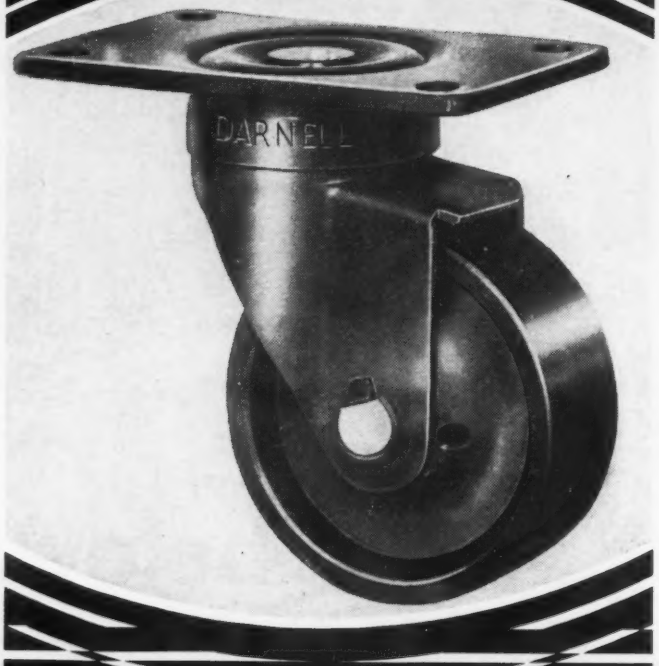

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surfaces from the shuttle with coarse sandpaper, and then rub the new pads of steel wool briskly over the shuttle surfaces. The last and final polishing is done with pads that have been used previously, and which contain a small amount of oil.

Other tasks can be accomplished with the use of these handy, time-saving pads. Shuttle-box binders, plates, and other metal surfaces can be smoothed; rust and grime removed; and, in many instances, the parts need not be removed from the machine.—E.H.W. (*Pa.*)

Single Pick Without Pick-and-pick Loom

It is sometimes desirable to weave a box-loom pattern with only one pick of a fancy filling between the ground picks. It is generally assumed that a pick-and-pick loom is required for this, and, therefore, it is not attempted on a 2 × 1 or a 4 × 1 box loom. It is possible, however, to weave this type of pattern on box looms which are not pick-and-pick if the single picks are not too far apart. A dobby loom must be used to achieve this result.

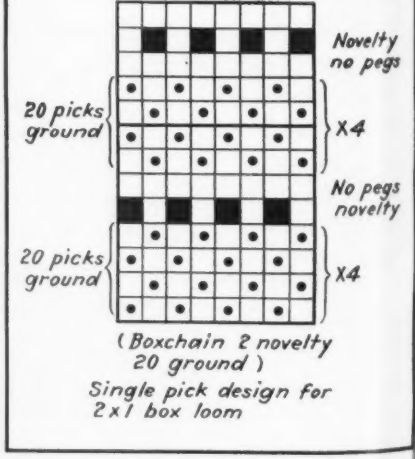
For example to weave the following pattern:

20 picks ground yarn woven plain.
1 pick novelty yarn woven plain.

(In the above example plain weave is used, but any weave is adaptable.)

The dobby chain must be pegged as follows:

Peg the ground picks as usual, peg the novelty pick as desired. (This will bring the novelty filling into the single box.) Do not peg the next pick. (This allows all the shafts to stay down, including the selvages, and the novelty filling will be laid on the surface of the cloth as the shuttle crosses to the



Single-pick design for 2 x 1 box loom.

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So, today, the heart of the Quaker Chemical organization is its laboratory—or, rather, its laboratories—for there are *two* separate "labs" at our Conshohocken plant. One, the Control Laboratory, inspects all incoming raw materials as well as our own finished products. The other, a corner of which is shown above, is devoted entirely to research and development.

Heading these two "labs" is an eminent scientist who has studied at four leading universities, both here and abroad, and who has personally been granted more than 40 practical patents.

The Research group comprises more than 25 chemists and engineers . . . most of whom have accompanied Quaker Process Engineers on their field service calls and are, therefore, familiar with textile processing and are able to envisage the practical side of every mill problem.

These technicians work on special problems and permanent projects directed toward basic research on new synthetics for permanent water repellency, shrinkage control, crush resistance, and mildew prevention. Studies are also under way on the development of synthetics for warp sizing and stock lubrication. This work is carried on in a large, modern, open laboratory where every individual knows the work of the other.

In addition to the work of this group, Quaker Chemical also maintains fellowships and sponsors research projects in five leading universities.

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That this policy has borne fruit is evidenced by the many new type Quaker Chemical products that have already won wide acceptance throughout industry.

Just how far-reaching will be the effect of some of these developments on textile processing remains to be seen. In some cases their performance has been truly outstanding . . .

But rather than make extravagant claims for these products, we prefer to use this method of inviting you to establish contact with us . . . so that your mill may share immediately in whatever benefits emerge from Quaker's never-ending research.

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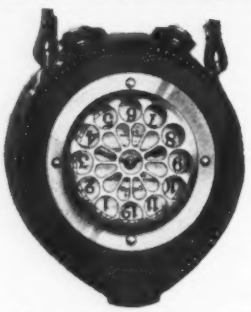

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multiple box side. This pick will remain on the top until the next single pick is required.) Peg the next ground picks as desired. Do not peg the following pick. (This allows the novelty filling shuttle to cross over the surface of the cloth. No filling yarn is unwound at this time, as the length of the yarn for the next pick is already on the surface.) Peg the following pick, which is the novelty yarn, as desired.

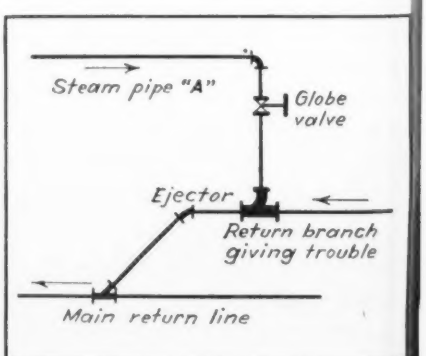
Point paper sketch shows manner of interlacing. The box chain must be pegged for two picks of novelty yarn at the single pick portion.—S.P. (*N.Y.*)

Assisting Drainage of Steam Return Pipes

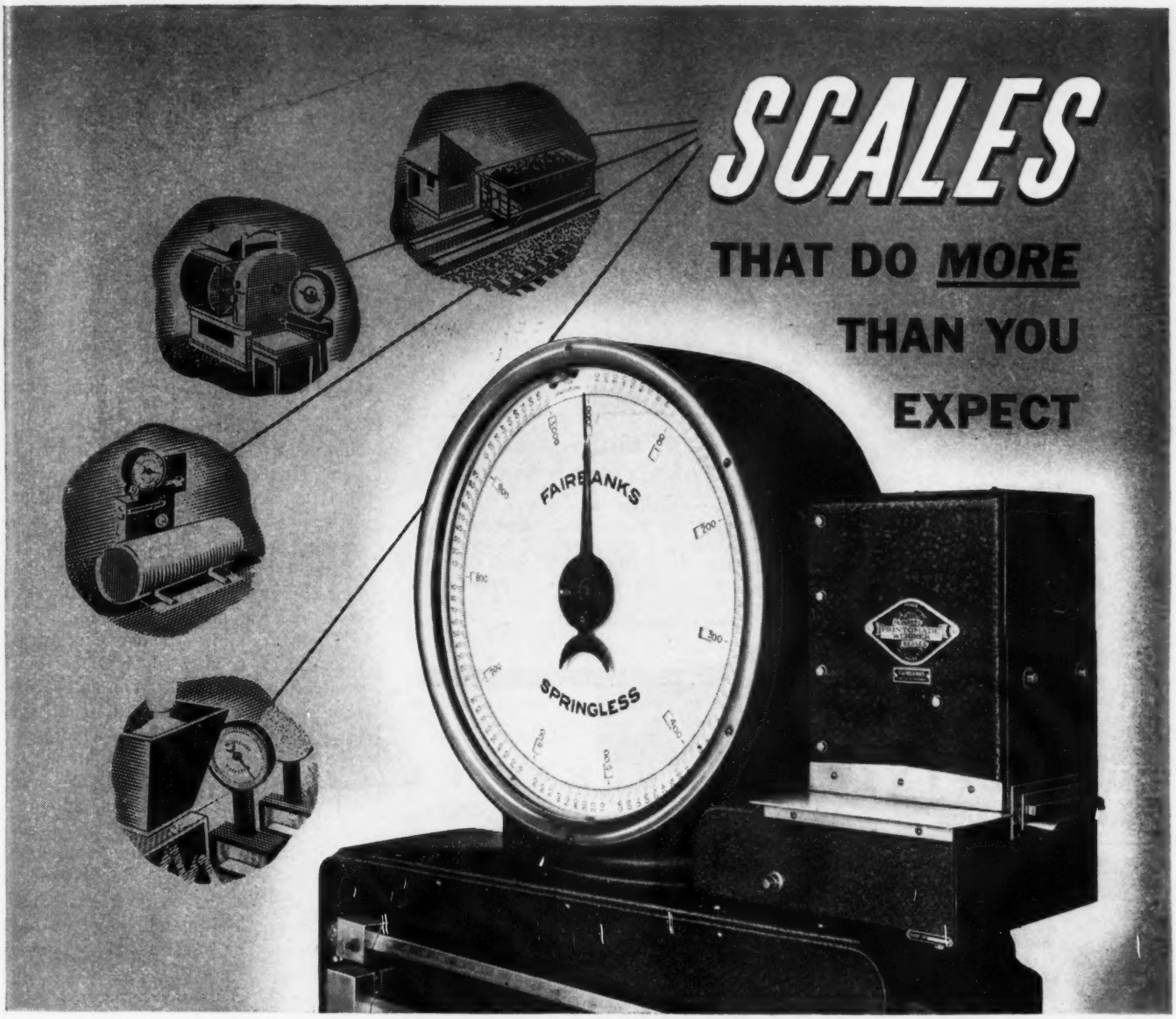
It sometimes happens, when a system of piping for heating or process work is spread over a large area, that the drop in pressure at the far end of a line is sufficient to hold back the condensate in the return pipe, causing water hammer or other disturbances.

Such a condition may require a "booster" of some form to force the condensate from such branch, or number of branches, into the main return line. One of the simplest methods is to place an ejector in the return branch giving trouble, at the point where water collects or a short distance beyond, as shown in above illustration. The steap pipe *A* for producing the suction is best taken from a higher pressure line. A globe valve in the line will throttle down the steam to a point just sufficient to produce the necessary suction effect.

If there is no high pressure line within a suitable distance, the same action may sometimes be secured by connecting line "A" with the low-pressure steam main supplying the system from which condensate is being returned. If a fairly good sized pipe is carried back for some distance toward the source of supply, there will often be sufficient difference in pressure to produce the necessary suction effect. This is especially true when the condensate is from some form of heater or process-



Booster for steam condensate return.



OF course, Fairbanks Scales are big, husky, and accurate. You have a right to expect these things in *any* good scale—and particularly of Fairbanks Scales with the world's broadest scale manufacturing experience behind them.

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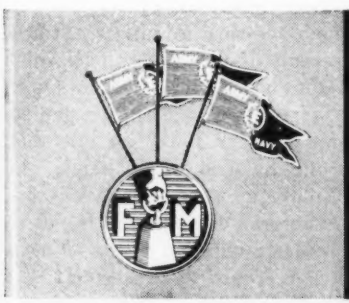
AND all of these things, only the beginning of the story, they do automatically and mechanically thereby eliminating human errors.

How Fairbanks Scales can be fitted into your production flow to speed up operations and eliminate errors may prove to be the most interesting discovery you ever made. Investigate now. Write Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago, Illinois.



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ing equipment where the drop in pressure is considerable.

Another method is to use a return trap in the place of the ejector. This is sometimes preferable where there are a number of branches which have to be operated with the aid of a booster.

Another arrangement is a small electric or turbine pump, or a belted rotary or centrifugal pump if there is a line shaft near. Local conditions will determine best method. C.L.H. (*Mass.*)

Replacing Special Bolt

The item "Replacing Special Bolt," on page 130-1 under "Overseers Practical Helps" in the April issue of TEXTILE WORLD, suggests that an inexpensive substitute can be made for a certain Crompton & Knowles picking roll bolt by grinding off three of the four corner projections from under the head of a common machine bolt.

There are times when one is out of stock on a needed repair part for a production machine, when a temporary repair must be made from anything available. But such emergency repairs, while important to know, are usually not advocated as cost savers.

I don't believe the author intended to advocate this substitute as a cost saver, though some might get that impression from the suggestion. Common bolts are not made of special steel, they are not heat treated, they have only 10 threads per inch instead of 26 per inch; hence nuts will get loose. They will not stand up under the severe impact of picking, to say nothing about the cost of the labor you add to the cost of the common machine bolt by grinding it to fit the opening in the hardened steel picking roll bushing.

I am rather inclined to believe that the item was submitted because the contributor thought there might be difficulty in obtaining them, rather than from the standpoint that the makeshift was less expensive.

The War Production Board, in Washington, recognizes the importance to the war effort of keeping production machinery (which includes looms) in proper operating condition. They have granted priority assistance from the very start of the war for mills to be able to buy loom repair parts and for the loom manufacturers to supply them.

As a result of the importance which Washington has attached to this part of the war program, we are temporarily out of stock today on less than 1% of our finished stock items, and special picking roll bolts with fine thread is not one of them. H. R. Wing, Supply Sales Manager, *Loom Works. Crompton & Knowles.*

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tegrated, and the outer surface of the wall has turned white. Ordinary repainting was done for awhile, but without success. Finally, a year ago the wall surface that was exposed to the splash was thoroughly cleaned and then was overlaid with a thick coat of cement made up with about 2 qt. of sodium silicate to a pail of water. The outer wall was pointed with a similarly made-up mortar. Thus far there has been very little action on this coating, but more time is required for a real test. As the wall was inside the yard, no effort was made to clean off the white color.

Roving Frame Design

Technical Editor:

In the Textile Equipment News Department of the March issue of TEXTILE WORLD, there was a description of an all-welded cotton roving frame suggested by William Shaw. I do not understand how it is possible with this design to set the large metallic rolls close enough to the usual 3- or 4-line rolls, considering the clearer rod. (8897)

Following is Mr. Shaw's reply to this inquiry: The clearer rod is removed. The clearer is attached to the roll stand by a stud or bolt. A post or stand supports the center cap bar. By removing the clearer rod, the large metallic rolls can be set to the usual line of rolls to suit the stock run.

Cleaning Drop Wires

Technical Editor:

Inclosed are some drop wires which are giving us trouble. These drop wires have been washed in boiling water, but they are not right. At times the weavers put wet cloth back of the drop wires. This causes the starch from the warp to stick to the wires. Also the sliding rods get sticky and prevent the drop wires from falling when an end breaks. Will you let me know the best way of cleaning drop wires. (8896)

There must be something radically wrong with your set-up. First, the use of wet cloth or cotton mopping behind the drop wires, smacks of the old silk-weaving era before controlled humidity came into its own. This practice should be discarded as soon as possible. Second, there is a reason for weavers fostering the use of the wet cloth, and such reason may be a dry, hot condition in the weave shed. However, there are other reasons for your trouble.

Not knowing the yarn you are running, nor the warp set-up in the loom, some of the following suggestions are based on assumptions arrived at through the wording of your letter.

Go over the sizing formula and see if you cannot improve on it to avoid excessive gumminess in the compound. The placing of wet cloth on sized yarns tends to gum the starch and allows it to work off onto drop wires, lease rods, and heddles. The sizing formula used on yarns woven under controlled humidity must be changed where yarns are woven in rooms without humidifiers. In weave rooms without humidifiers different size formulas will be needed during different seasons of the year. By sizing some sample lots to give a running test on various mixtures you will be able to determine the formulas to use under various atmospheric conditions. But don't stop at the sizing; follow the warps on through and check all angles of quality and production. And then complete the check through the finishing. When you have a satisfactory formula for one type of yarn, make your check-ups on other yarns.

In the weave shed, make the following check-up. How are the lease rods and other parts placed on the warp? Try the lease rods in the back of the wires. The drop-wire brackets should be up to avoid yarn chafing on the wire or on the rods. When an end breaks, it should fall down so the sliding bar will function. If the wire fails to fall properly, check on the shed, weight of drop wire, and also on the mechanical action of the sliding rods.

If the shed is lower than usual, the broken end fails to fly back and will lie among the other ends in front of the drop wires, feeding into a mass of tangled yarn and holding up the wire. If the warp is lightly tensioned, results are the same. Use of split rods on some weaves will likewise cause this trouble, whereas the use of split rods on other weaves will drag the end out.

Most important of all, use more banks of drop wires, as the warp count may be so high as to crowd the wires together tightly. Increase the number by two or four more banks than you are now running. If you are now using a four-bank, try a six-bank bracket.

At piece cut-off marks, spray the drop wires and sliding rods freely with a cleaning liquid. A good gum-cutting compound can be secured from most any reputable oil firm. Spray the heddles and also the reed. Keep the loom running while this spraying is being done.

Hot water alone will not remove the gum which is caked on the wires, you must use a cutting agent to soak into the starch and dissolve it. You could use a bath of trisodium phosphate and allow the wires to soak at least 12 to 24 hr. before brushing them. Leaving the wires on the rods or placing them on thin rods and brushing them in this manner, will eliminate the bunching of the wires and bending the ends. Brush from the rod down. However, if you perfect your sizing and warp set-up in the loom, the wires should go for years without need of cleaning.

"Proudly we hail..."

We're mighty proud—all 6445 of us—of the honor conferred upon us today.

Yes, we're proud of our twin "E" Pennants—proud of our "E" Buttons—proud because we as individuals had a part in reaching the goal that made this award possible.

And we want you to know we're just getting started—that the real significance of today's award lies in the promise of even greater accomplishments in the days to come.

Signed:

6445 Men and Women of the Cone Greensboro Mills

PROXIMITY—REVOLUTION
WHITE OAK—PROXIMITY PRINT WORKS

CONE EXPORT & COMMISSION CO., NEW YORK, SELLING AGENTS

NEWS OF THE MONTH

Spartanburg's "Textiles Go To War"

The "Textiles Go To War" ceremonies and celebration in Spartanburg, S. C., sponsored by prominent citizens of the county, was held on Sunday and Monday, May 30 and 31, to re-dedicate the local textile industry to a greater war effort and to recognize formally the accomplishments of cotton-textile employees and their importance to the war effort.

Visitors and employees who attended were impressed with the seriousness and beauty of Sunday's re-dedication ceremonies. Monday's celebration was marked by the opening of the textile exhibit by the Quartermaster Corps which remained open for inspection during the entire week. Major General Clifford L. Corbin, chief of the Quartermaster Corps and Rear Admiral W. B. Young, U. S. N., told the gathering at the local high school the great importance of textiles in war. Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, also spoke of the industry's war and post-war goals. Other prominent members of the Quartermaster Corps and of the textile industry spoke.

Over 25,000 people gathered at Duncan Park to hear James F. Byrnes, Administrator of War Mobilization, tell of the nation's progress in war and speak courageously of the future. Mr. Byrnes, who has recently been made supreme director of the country's affairs, is affectionately known as "Jimmy" in his home town of Spartanburg. His speech was broadcast over a nation-wide hook-up, and later summarized by numerous news commentators.

The remainder of the afternoon was given over to a county-wide textile beauty contest for a textile beauty queen; an all-cotton fashion show by Miss Virginia Jewell of the Cotton-Textile Institute, and Vox-Pop, the nationally-famous radio program.

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Viscose Reduces Staple Fiber Price

American Viscose Corp. has reduced prices of Fibro dull staple fiber to same level as bright. Previously the dull types were 1¢ higher per pound. Standard bright viscose staple fiber is reduced from 25 to 24¢. This is the first change in price of this product since September, 1937, at which time it was reduced from 28 to 25¢.

The higher strength bright rayon staple fiber, Avisco, of 1.5 denier and coarser, is reduced from 26 to 25¢. "Tufton," the specially-designed rayon staple fiber used in the carpet industry, in the semi-dull type, is unchanged at 29¢.

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May Modify Wool-Blend Rulings

The possibility that WPB may drop the blending provision in its allocation of raw wool which mills may put into the works for civilian account, has been rumored in quarters of the market. Protest by manufacturers and by wool growers, as well as evidence of plentiful supplies of wool and dwindling supplies of blend fibers, is said to be leading toward such action.

COLONEL ROBERT C. BRADY, commanding officer of the Philadelphia Quartermaster Depot, welcomes to the Depot the "Maid of Cotton," Miss Bonnie Beth Byler, of Lepanto, Ark. The Maid of Cotton, chosen from among representatives from 17 cotton growing States, and representing the activities of 13,500,000 American farmers and workers directly concerned with cotton products, visited the Depot on May 21 during her 20,000 mile nation-wide tour.

Bell Warns Against Uncompensated Cotton Price Rise

Warning of a condition which would seriously hamper the cotton-textile industry's war effort, W. Ray Bell, president of the Association of Cotton Textile Merchants, last month flatly contradicted statements made before the Senate Agriculture Committee to the effect that materially higher raw cotton prices without proportionate increases in present OPA ceilings on cotton goods would leave "a fair margin of profit" for cotton mills. Pointing out that present ceilings were made a year ago and based upon a cotton price of 20.37¢ per lb., materially below prices at present prevailing, Mr. Bell asserted that production in many divisions of cotton goods has been adversely affected by narrow margins, and that actual loss would follow "an increase in price of cotton without adequate compensation in ceilings."

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Oppose Bulk Buying for Export

The textile industry, particularly the cotton-textile branch, which has cultivated the foreign field, is opposed to bulk buying for export. Bulk buying includes the operations of Lend-Lease, the British Purchasing Commission, and any other similar bodies. The basic objection is that these agencies short-circuit the usual channels of trade—specifically the exporter in this country and the importer in the foreign country. For Lend-Lease, textile men admit usefulness only during emergencies in countries where regular channels are lacking or disrupted.

Mills which in the past have catered to export trade have gained knowledge of put-ups, customs regulations, types of goods, brands, trade personnel, etc., which is in effect a

Tried *this* water repellent?

Johnson's DRAX

DRAX *is noteworthy for its ease, simplicity, and economy of application*

DRAX *provides even, uniform distribution on entire run of cloth*

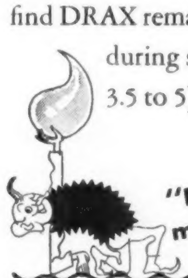
DRAX *may be diluted with ordinary tap water*

DRAX *provides high water repellency, helps improve hand*

DRAX *has an excellent "money value"*

Yes, try DRAX. You'll find characteristics in *this* water repellent not found in many others.

DRAX is an aqueous emulsion of waxes, aluminum salts and emulsifying agents, developed for textile finishers. A special method developed by S. C. Johnson & Son makes colloidal particles of DRAX extremely small and uniform in size. The result is much better impregnation of fibres. You'll find DRAX remains completely stable in solution during storage... and that its acidity (pH 3.5 to 5) requires a minimum of control.



"DRAX is made by the makers of Johnson's Wax"

Special Mildew DRAX Formula

We have developed a special formula to meet the mildew problem. DRAX 1860PMA formula contains sufficient quantity of phenyl mercuric acetate to provide a mildew-proofing which meets the microbiological test for *chaetomium globosum. DRAX 1860PMA DOES NOT LEACH OUT.*

Get the facts about DRAX, write

S. C. JOHNSON & SON, INC.

Industrial Wax Division, Department TW 63, Racine, Wisconsin

BUY U. S. WAR BONDS AND STAMPS

DRAX • DRAX • DRAX • DRAX • DRAX • DRAX • DRAX • DRAX • DRAX • DRAX • DRAX • DRAX • DRAX •

SENSATIONAL

How DEVOPAKE hides and covers any surface *in just one coat!*

Sensational performance counts even more dramatically and profitably in war time, when **seeing** conditions must be at peak for health and production . . . when **maintenance** must be managed at smallest cost in materials and man hours . . . when activities must suffer the least interference.

On all these scores—Devopake rates as the interior wall paint favored by alert maintenance men and master painters. For Devopake is an oil-base paint . . . a **self-sealing primer and finish coat in one.** With this **one** coat of Devopake you solidly **hide** . . . and **cover** . . . any type of interior wall surface. Applied with big brush or spray . . . Devopake goes on evenly, quickly — saving man hours. Devopake diffuses and reflects all available light . . . stands up under hard wear and repeated wash-downs. Devopake by popular demand is now packaged in 7 practical ready-mixed colors.

Specify Devopake on your next paint order. Take advantage of its remarkable covering and hiding . . . of its overall economy. Your satisfaction is guaranteed.

Devoe's maintenance paint line is built to meet all your requirements including high resistance to fungi, fumes and moisture.

Write us today for complete information that can help you solve your maintenance paint problems.

DEVOE & RAYNOLDS CO., INC.

The 189th Year of the Oldest Paint Maker in America

FIRST AVENUE AT 44TH STREET, NEW YORK, N. Y.

PRIZE WINNERS at the 16th Annual Style Show conducted by the Textile School of North Carolina State College and the home economics departments of North Carolina colleges for women. From left to right: Miss Hortense Futrelle, of Pendleton, N. C.; Miss Sudie Mae Kirkman, of Vanceboro, N. C.; Miss Annie Catherine Barden, of Rose Hill, N. C., winner of the Grand Prize; Miss Gwendolyn Khrahnke, of Leland, N. C.

form of competitive advantage in doing an export business, for which they have labored and spent money. These assets are wiped out by Lend-Lease, since mills which have not only never spent a cent on export but have even turned down such business, are now able to get into the field and do as well as the experts under bulk buying. Then too the 7% premium over domestic ceilings allowed on exports gives these previously non-exporting mills a larger profit margin for doing nothing than is left to the regular exporting mills which are maintaining their export departments on that margin.

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To Study Textile Finishes

The National Research Committee of the American Association of Textile Chemists and Colorists has recently established a sub-committee on textile finishes under the chairmanship of Kenneth H. Barnard, director of product research, Pacific Mills. Activities of the committee will include development of methods for qualitative and quantitative determination of the newer synthetic finishes, such as water-repellent and mildewproof finishes.

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Cotton Week Gets Extensive Support

Retail observance of Cotton Week, which began May 17, was more extensive than at any time in the history of this long established merchandising event. In the New York metropolitan area, miles of window displays were devoted to the presentation of cottons while a number of stores arranged style shows and attractive exhibits of the war uses of cotton to attract consumer attention to the versatility of this American fiber. In addition, impressive advertising schedules supplemented the store displays, while special radio broadcasts on the subject of cotton and its innumerable uses were staged.

Commenting on the observance of Cotton Week, Charles

DEATH LEAVES A FINGERPRINT

Probably it was hot and humid in the assembly room... that day when warm, perspiring fingers accidentally touched a tiny, needle-pointed shaft. But the fingerprint remained . . . acid, corrosive . . .

A saboteur—this accidental fingerprint? Yes—for on a later day that tiny part, weakened by corrosion, may fail—in a submarine depth-gauge, an airplane altimeter, or in any of scores of delicate military instruments. And just because of a fingerprint, a man may die.

* * *

ANOTHER WAR JOB FOR AIR CONDITIONING. Where precision instruments are made, on which men's lives depend, air conditioning reduces perspiration . . . filters out dust . . . helps speed output.

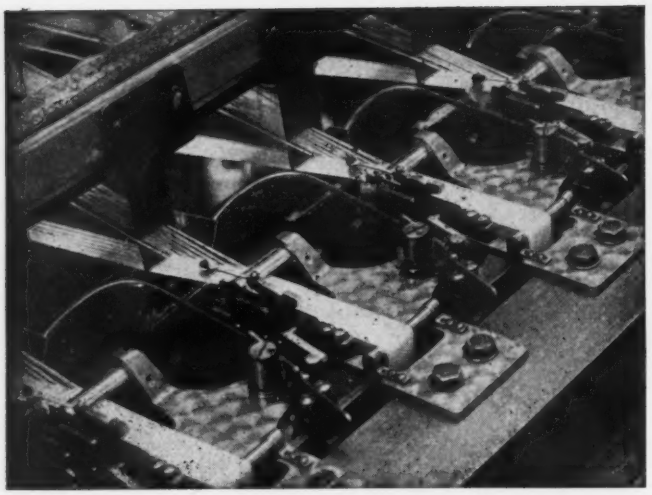
And this is but one example of how General Electric *air conditioning* and *industrial refrigeration* may serve the war effort. To meet the exacting requirements of these wartime applications, General Electric is producing equipment that is highly efficient . . . flexible . . . compact.

When peace comes, this improved air conditioning equipment — by General Electric—will be available to all.

General Electric Co., Air Conditioning and Commercial Refrigeration Dept., Division 436, Bloomfield, N. J.

Air Conditioning by

GENERAL ELECTRIC



Change with the Times

CLUTSOM HIGHSPEED SHUTTLELESS LOOM

We are still planning for War but many executives are planning ahead for Peace too.

Vast production of narrow fabrics will be needed after the war and the trade will go to those mills best equipped. It is time to consider weaving in the modern way, time to discard the old, time to think in terms of speed and high production at lower cost. Time to change with the Times.

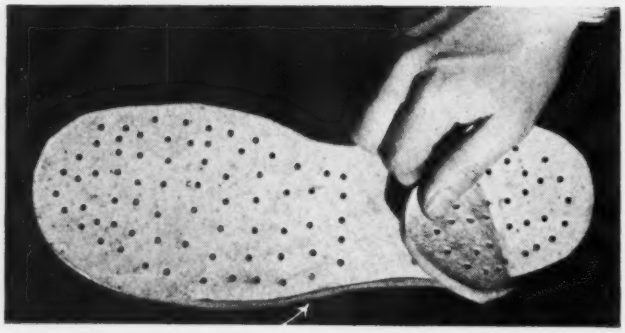
Why not let us give you a demonstration of weaving in the modern way—those old type looms must be wearing out under the wartime beating they are taking.

CLUTSOM MACHINES INC.

205 EAST 42 STREET NEW YORK

Telephone MUrray Hill 4-2327

FACTORY: Springdale, Connecticut



ARCTIC EXPEDITIONS and tests by Army and civilians are resulting in foot-comfort in cold climates. New "ventile" wool felt insole, designed by Jule F. Marshall, vice-president of American Felt Co. It "breathes", exhaling moisture from perspiration, tending to keep the foot dry and thus able to retain its own heat. Sole is in two layers, hinged on side to which arrow points.

K. Everett, of Cotton-Textile Institute, said, "Our check-up shows that presentations are being based on quality, conservation and the unique washability of cottons. Also highlighted are the vast improvements that have been achieved in the styling and finishing of cottons for higher priced apparel. Price appeal promotion was conspicuously absent."

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Besse Criticizes Senate Finance Committee Action

In a letter addressed to members of the Senate, Arthur Besse, president of the National Association of Wool Manufacturers, called attention to Senator George's statement that the State Department was "unwilling to accept" changes in the Reciprocal Trade Agreements Act and asked whether the Senate is limited to passing legislation approved by the State Department.

In a brief in opposition, sent to members of the Senate, Mr. Besse maintained that rather than contributing to international understanding the delegation of power over tariffs sought by the State Department would cause unsettlement since foreign countries would feel insecure in dealing with an Executive Department exercising delegated powers in a manner at variance with the desires of the people and the will of Congress.

Mr. Besse pleaded for a full consideration of the question of what industries are to be considered essential in the post-war world before we consider any changes in the tariff or any commitments to other nations.

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S. C. Manufacturers Elect Hagood President

Cotton Manufacturers Association of South Carolina elected as its president B. F. Hagood, president of Glenwood Cotton Mills, Easley, S. C., at its annual meeting in Spartanburg, May 27. Mr. Hagood succeeds James A. Chapman, president of Inman Mills, who has headed the association since 1940. Other officers elected included: S. H. Swint of Graniteville, S. C., vice-president; W. P. Jacobs, of Clinton, S. C., executive vice-president and treasurer; Miss A. L. Norman, of Clinton, acting secretary.

Mr. Chapman, in addressing the convention, stated that South Carolina is proud of its record in the number of mills that have received the Army-Navy "E" Award, and in the record which all the mills in the State have made in the sale of War Savings Bonds.

Available in *Limited Quantities Only*

It's Welded

WEARS 3 TO 4 TIMES LONGER!

The *Finnell Steel-Wool Pad* wears so much longer because it wears *evenly* -- the result of balanced performance accomplished through welded construction. *It gets all the wear out of all the material!* . . . and prevents tearing and shredding of the pad.

Because welded construction assures uniform contact, the *Finnell Steel-Wool Pad* must and does do a better job in less time. It's the perfect pad for dry cleaning and burnishing waxed floors to a safer, wear-resisting finish . . . *in one labor-saving operation!*

Finnell Pads are self-adjusting, and can be used on any fibre brush, with any disc-type machine. *Sizes:* 5, 7, 11, 13, 15, 18, and 21-inch. *Grades:* No. 0 -- *Fine*, for cleaning, polishing, and burnishing. No. 1 -- *Average*, for cleaning and scrubbing. No. 2 -- *Coarse*, for use on rough floors. No. 3 -- *Very Coarse*, for removing paint and varnish.

For literature or consultation, phone or write nearest *Finnell* branch or Finnell System, Inc., 1906 East Street, Elkhart, Indiana.

THE *Finnell* STEEL-WOOL PAD

★

THE 600 SERIES *Finnell*

Steel-wools, scrubs, polishes, waxes, burnishes, sands, and grinds. 5 sizes. Equipped with *Feather-Touch* Safety Switch. Available to essential users qualifying on Application Form PD-722.

FINNELL SYSTEM, INC.

Pioneers and Specialists in

FLOOR-MAINTENANCE EQUIPMENT AND SUPPLIES

BRANCHES IN ALL PRINCIPAL CITIES

OSCAR HEINEMAN CORPORATION

Throwsters for the Hosiery Trade

Quality Products for Fifty Years

Leading Hosiery Manufacturers are profiting as a result of the superior knitting and finishing quality of our high twist rayon yarns, processed with our special R/50 *Avconit formula for unoiled yarns and our R/60 and R/70 formulae for oiled yarns. Each of our formulae have been developed by experts with a background of years of experience and will produce equally good results on either Viscose or Acetate yarns.

There is no substitute for experience and skill in the processing of high twist rayon yarns which will enable the manufacturer to produce fabrics of even texture and clearness.

FOR

Increased Production
Less Seconds and Waste
Satisfied Knitters

USE

Our *Avconit processing for Viscose, Bemberg and Acetate yarns.

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*Trade Mark
American Viscose Corp.

Cleaning Cotton at the Gin

A revolutionary new method for cleaning cotton at the gin is described by M. A. Goldman and Beardsley Lawrence in the May issue of *Textile Research*. Cotton cleaned by this method is said to come from the gin as clean as, or cleaner than, it is now possible to clean it in the mill, and the use of only one picker section is all that is necessary to make any desired weight of picker lap of uniform density. With an experimental machine, it has been found possible to remove all foreign matter and to deliver a clean product with no loss of usable fiber. Plans are being completed for the construction and operation of a full-scale unit to be put into operation at some gin to operate on this year's crop.

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Epidemic of Books on Absenteeism

Publication of reports and pamphlets on how to check absenteeism has reached epidemic stage.

Among recent contributions are: "Ways of Dealing with Absenteeism" prepared by the War Production Board, Washington; "Manpower Lost" prepared by the Regional War Manpower Committee of the War Manpower Commission in New York; and "Controlling Absenteeism" prepared by the Division of Labor Standards of the U. S. Department of Labor. In addition, the Office of War Information has released several statements regarding methods of handling this same problem.

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Joint Meeting of Textile Schools Alumni with AATT

Graduates of 14 different textile schools meet with American Association of Textile Technologists at their May meeting in New York City to hear an address by Prof. Edward R. Schwarz, professor of textile technology, Massachusetts Institute of Technology, who summarized the advance made in molecular mechanics in relation to research in the structure of textile fibers. Said Professor Schwarz, "Modern textile research should determine the fundamental properties of fabrics which will best serve specific purposes and then engineer filaments of such structure as most perfectly accomplishes the results sought."

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Recent OPA and WPB Utterances

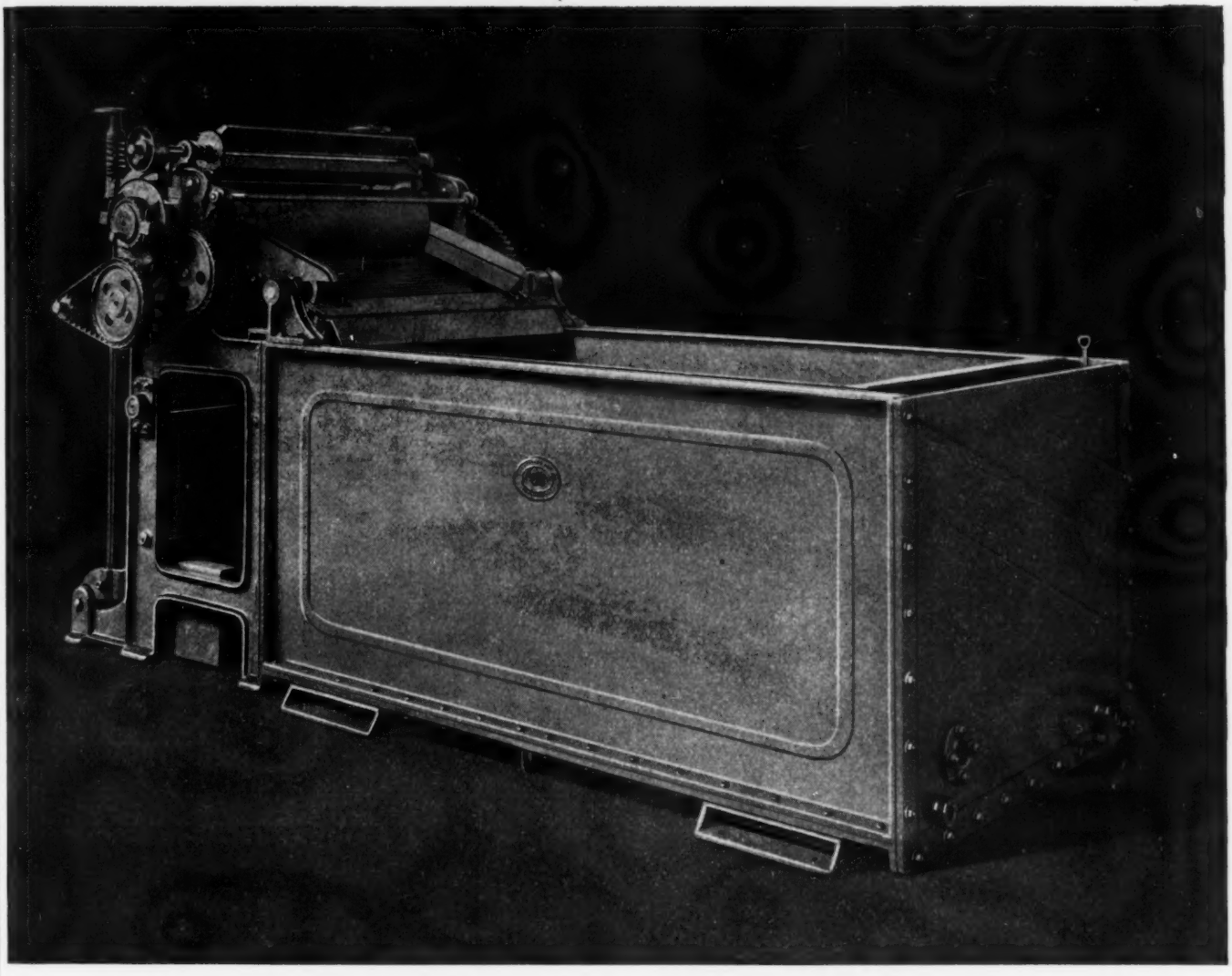
Among recent enactments of OPA and WPB are the following:

A number of changes in standards of construction and provisions for temporary marking and pricing of rayon hosiery now in stock has been supplied by OPA in Amendment 3 to MPR 339. Acting on suggestions from the industry, the changes were worked out with the War Production Board.

Rep. Wright Patman (Dem., Tex.) is giving an opportunity to textile industry leaders to enter protests on OPA's standardization programs. The MPR order 339 will receive particular scrutiny, Rep. Patman said.

Manufacturers of undercollar cloth—used to reinforce collars of coats—have been notified by OPA that this fabric comes under General Maximum Price Regulation, not under MPR 163.

Three cotton textile orders assigning A-2 ratings for procurement of certain types of cotton fabrics have been amended in WPB Order L-99. The orders—M-107 (cotton-



THE PRACTICAL MACHINE FOR INDIGO DYEING WOOL STOCK

THE Hunter Indigo Dyeing Machine, when used in continuous range with Hunter Automatic Feeding, Rinsing, Extracting and Drying Equipment, affords a straight line continuous production not available with other methods.

This Hunter machine consists primarily of a tank, a basket of corrosion-resistant perforated sheet metal for holding the wool, and a pair of squeeze rolls. The kettle is heated with live steam by a modern arrangement.

The operation is simple: The basket is filled with wool, submerged in the vat and allowed to stand the necessary time. The basket is then raised by means of either an air or an electric hoist, and the wool is passed through the squeeze rolls and delivered into a proper receptacle where it is allowed to oxidize.

Wool dyed by this method is completely penetrated by the dye liquor. Even and uniform shades are produced, free from crocking or smutting. Furthermore, the stock is left in perfect condition, retaining all its softness and pliability. The Hunter Indigo Dyeing Machine handles the stock easily, and only one man's operation is required.

These Indigo Dye Machines are available to take charges from 100 to 250 pounds, and are in use in many mills now operating on Navy contracts.

FOR COMPLETE DETAILS, WRITE

JAMES HUNTER MACHINE CO.
NORTH ADAMS, MASSACHUSETTS
FOUNDED 1847

Obermaier

REG. U. S. PAT. OFFICE

Package Dyeing Installation, Extracting and Drying in a complete cycle on the same material carrier

•

Builders of

Cotton & Wool Dyeing Machines

for

Beams • Packages • Rawstock • Skeins

•

Centrifugal Extractors and Driers

•

Centrifugal Pumps

•

Rayon Cake Dyeing Machines

•

Dye Spindles and Perforated Tubes

☆

STAINLESS STEEL CONSTRUCTION

All Subject to Required Priorities

☆

Standard Fabricators

INCORPORATED

355 WALTON AVENUE • NEW YORK, N. Y.

Replacement Parts For Existing Machines Can Be Furnished

TEXTILE CALENDAR

Swim-for-Health Week, June 21 to 28, 1943.
Philadelphia Textile Manufacturers Association, 17th annual outing, Cedarbrook Country Club, Philadelphia, June 25.
Exposition of Chemical Industries, New York, Dec. 6 to 11, 1943.

textiles for bags), M-134 (cotton-textiles for industrial and surgical products), and M-218 (cotton-textiles for agriculture and food processing uses)—define the types of fabrics which may be procured for certain purposes through use of the rating. Since L-99, as amended, permits the manufacture of only certain types of cotton constructions, it was necessary that these three orders conform with L-99.

Supplementary Limitation Order L-99-a restricts the sale and delivery of 39-in. 80x80 4.00 yd. print cloth to orders carrying a preference rating of AA-5 or better. This action is intended to restrict the use of such cloth to essential end-products only, such as underwear, surgical goods and limited phenolic products for the armed forces and dress goods and percales for civilian use.

Men's and boys' sweat shirts, and men's, women's, misses', girls', boys' and children's T shirts similar to sweat shirts, but lighter in weight—are restricted to certain fabrics and models as a result of an amendment to WPB order L-247 (Knit Underwear).

Increased production of towels, face cloths and bath mats without additional raw material would result from a simplification program for these products discussed May 12 by members of the Towel Industry Advisory Committee meeting with officials of the Textile, Clothing and Leather Division, WPB.

WPB is permitting blanket manufacturers to fill orders for the Army, Navy, Maritime Commission and War Shipping Administration which call for blankets exceeding the 84-in. limit specified in Conservation Order M-298, issued April 23, 1943.

Order L-274, simplification and standardization of hosiery was amended May 15 to meet several criticisms from the trade. Reinforcement of rayon half-hose with cotton yarn in the sole is now permitted. Women's full-fashioned cotton hosiery, previously omitted, is now included.

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"First in War . . . First in Peace"

The above is the title of an interesting, well-illustrated booklet describing the processing and uses of the five vital raw materials derived from cotton: lint, cottonseed oil, cake or meal, linters and hull. The National Cottonseed Products Association, through its educational service, prepared this booklet and has distributed approximately 150,000 copies as one means of calling attention to the important part products of cotton and cottonseed play in the war effort and in our peace-time lives.

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QM Establishes Lend-Lease Storage Depots

A series of storage depots have been established by the Office of The Quartermaster General to handle War Aid (lend-lease) shipments of clothing and textiles, Colonel Robert C. Brady, commanding officer of the Philadelphia Quartermaster Depot, announced.

Formerly, manufacturers had to hold finished goods and wait for authorization from the War Department before

CHINES · PROCTOR DRYING MACHINES · PROCTOR DRYING MA

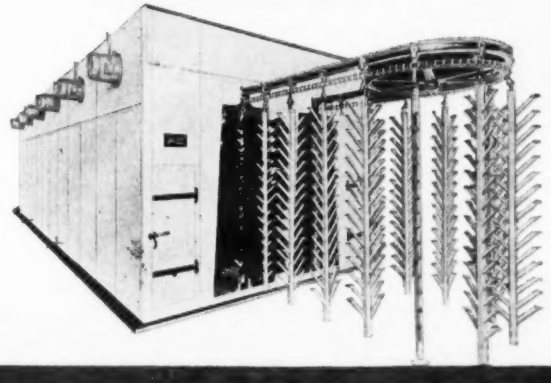
Recognition

PROCTOR DRYERS

ARE RECOGNIZED BY LEADING MANUFACTURERS OF FELT HATS

Just as any woman is quick to *recognize* smartness and extra quality in a hat, so leading hat manufacturers are quick to *recognize* the extra quality built into Proctor Drying Machinery. For absolutely uniform results, together with maximum output at a minimum cost in drying fine felt hats, leading hat manufacturers turn almost instinctively to Proctor Dryers. The same is true in nearly every other major industry. Whether it be hats, textiles, pharmaceuticals, chemicals, food, veneer, soap or synthetic rubber, there is a Proctor Dryer scientifically designed and "custom-built" to do the job *right* If you have a drying problem, now is the time to have Proctor engineers consider its solution toward that day when other-than-war products can be purchased. Naturally, if your product is vital to the war effort, we can supply you with new machinery today.

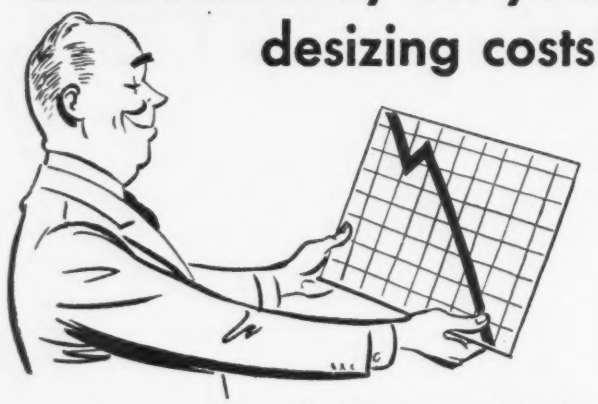
PROCTOR & SCHWARTZ, Inc.
PHILADELPHIA, PA.



PROCTOR AUTOMATIC HAT DRYER and CONDITIONER for drying wool or fur felt hats. 10 to 12 hours may be required to dry dyed hats in a dry room, whereas the new Proctor Dryer dries them with uniform correctness in 20 minutes for wool felt and 40 minutes for fur felt. This Proctor Machine automatically conditions felt hats with unvarying evenness in from 10 to 20 minutes, thus saving another several hours over other methods.

CHINES · PROCTOR DRYING MACHINES · PROCTOR DRYING MA

EXSIZE may cut your desizing costs!



© 1943, Pabst Brewing Company, Milwaukee, Wisconsin

● Do you know, by competitive test, if the desizing agent you use is best and most economical for its purpose? EXSIZE, a liquid concentrate of pure malt enzymes, has a superb record in the complete removal of starch-base sizes from animal, vegetable and synthetic fibres.

Its gentle, natural action works fast, to save time in both desizing and rinsing operations. It is highly efficient — leaves the cloth soft, clean and better prepared for bleaching and dyeing. It is entirely safe, easy to prepare, and economical in cost and use.

Try EXSIZE on a sample run, and compare. It may be the answer to reduced desizing costs. A trained Pabst field man will be glad to work with you in making the necessary tests, in our laboratories or your own mill — no obligation. Write for a detailed free booklet.

PABST SALES COMPANY
CHICAGO, ILLINOIS
Warehouses at New York, and
Textile Warehouse Company, Greenville, S.C.

they could ship them to ports of embarkation, or holding and reconsignment points. Now, mills will ship to storage depots, where goods are held for shipment, or to inspection depots for inspection and subsequent reshipment to the storage depots. Payment is made promptly upon receipt of reports certifying that the goods have been found satisfactory by Quartermaster Corps inspections. This procedure will result in a considerable saving to manufacturers in space, insurance, and interest costs, thus making both space and capital available for purposes of production.

▼ ▼ ▼

Rayon Weavers Gain 8% in Production

At a recent meeting of the Rayon Weavers Industry Advisory Committee and WPB officials it was reported that the voluntary program, instituted by many mills to increase the width of goods had resulted in about an 8% increase in production on May 15. The Committee pointed out that this wider material can be cut to better advantage and urged that more mills adopt the same program, which has a labor-saving advantage, as well. Representatives from the spun-rayon groups urged that the allotment of wool yarn now assigned to the rayon industry be increased in volume in order to take care of the needed increase in staple fibers.

▼ ▼ ▼

Limitations on Ticking Use

Several suggestions for increasing production of woven bed ticking for military and essential civilian needs were proposed at a recent meeting of the Bed Ticking Industry Advisory Committee and WPB. It was suggested that the use of 8-oz. ticking be limited to mattresses and pillows containing not more than 25% of hair, feathers or down as this weight ticking is most practical for this particular content. It was also suggested that in 6.2 oz. ticking the number of picks be reduced but the weight maintained by increasing the weight of filling yarns. This should give approximately 10% increase in yardage production. All other woven twill and sateen tickings should be made in weights not heavier than 3 yd. to the pound nor lighter than 5 yd. to the pound, based on 32 in. widths.

▼ ▼ ▼

"From Yonkers . . . to Guadalcanal"

Under the above caption, Alexander Smith & Sons Carpet Co. has published a booklet describing some of the many war-time uses of cotton duck, which this company is now producing as a result of its conversion program. An interesting fact involved in this booklet is that its preparation was the result of a suggestion made by a loomfixer in the mill.

▼ ▼ ▼

Wool Overseers to Mark 60th Anniversary

The 60th semi-annual meeting of the National Association of Woolen & Worsted Overseers was held at Crescent Park, R. I., May 15. It was voted to have a special celebration at the regular meeting next fall to mark the 60th anniversary of the founding of the association. Eighteen new members were voted into the association and 21 new applications for membership were turned over to the committee. Nominations for officers to be voted on at next meeting

TEXTILE BANKING COMPANY

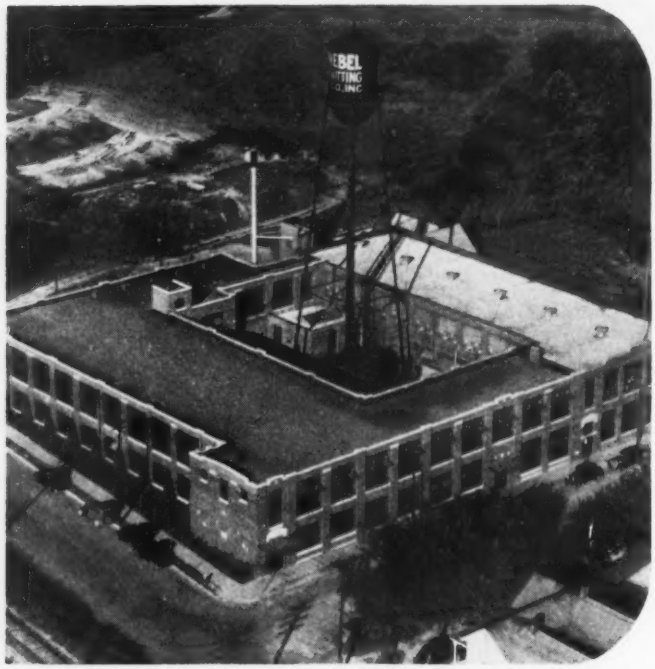
Factoring Service

Puts your sales on a cash basis
Strengthens your cash position
Relieves you of credit losses

55 MADISON AVENUE • NEW YORK

Would repairing, altering or adding to

your present plant facilities



Nebel Knitting Co., Charlotte, N. C.*

—help you produce more efficiently?

Ask Southeastern—
for ways, means and costs!

One extra rest room for women employees helped one war essential plant to cut absenteeism and increase production. Another speeded up plant traffic flow by altering a door and passage-way arrangement. Still others have put in new floors, or remodelled existing structures or built additions—all to provide more efficient physical or psychological war working conditions.

To get such work done—speedily, economically and dependably, Southeastern offers a construction service which is backed by a 22 year old record of fair dealing and responsibility . . . on large or small jobs . . . with an organization strongly studded with many specialized key men. Inquiries are invited from Southern executives on costs, priority and WPB requirements for any type of today's necessity construction or "re-construction."

*One of many industrial plants constructed by SOUTHEASTERN

Southeastern Construction Co.
CHARLOTTE NORTH CAROLINA

were: For president, Joseph Scanlan; 1st vice-president, Eugene Tatro; 2nd vice-president, Elwood Ward; for 3rd vice-president (the only contested office), Manuel Silva and Fred Pratt. For secretary of the Beneficiary Department Fred Leibold was nominated to succeed Bernard J. O'Reilly.

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Parts Inventories Limited to 90-Days' Requirements

One of the provisions of Order P-139, put into effect Feb. 3, 1943, by the War Production Board to give a better priority rating to purchase of maintenance, repair, and operating supplies required to keep machinery and plants in sound working condition in the textile, clothing and leather industries, was the restriction which stated: "Inventories of maintenance, repair, or operating supplies cannot exceed minimum practical working requirements. In any event, inventories cannot exceed 90-days' requirements." In other words, a mill cannot purchase any such parts or supplies until its inventory is down to 90 days or under.

▼ ▼ ▼

First Degrees at Philadelphia Textile Institute

Philadelphia Textile Institute conferred degrees for the first time in its history at its annual graduation early this month. One of those to whom a degree was awarded was Capt. Geo. A. Litchfield, Jr., of the Philadelphia Quartermaster Depot. He graduated from Philadelphia Textile School in June, 1938, and was one of the first of the former students of the institute to respond to its call for enrollment in the new course in textile engineering.

▼ ▼ ▼

All Vinyon Goes to War

The entire output of elastic "Vinyon," manufactured by the American Viscose Corp., is currently going into military equipment or into articles connected with war activities, where it is replacing rubber, the company has stated. Considerable quantities are being used by the Army for the canopy suspension cords of jungle hammocks, an application in which the product's ability to resist deterioration caused by heat, humidity and the effects of weather are particularly valuable. The new elastic yarn is also being used in the waistbands of the underwear and exercise uniforms issued to the WAACS, in metatarsal pads used by industrial workers to support the balls of their feet, and in elastic tapes for industrial workers' goggles.

▼ ▼ ▼

This and That

Dollars and cents ceilings for approximately 4,000 models of used industrial sewing machines were established last month by OPA.

Utilization of Nylon by the Army Air Corps was featured by E. I. du Pont de Nemours & Co., Inc., in the "Cavalcade of America" program broadcast on May 17.

Use of water-dispersed pigments for textiles was discussed by Fred G. La Pina of Stein Hall & Co. at a recent meeting of the Rhode Island Section of the A.A.T.C.C.

Nylon yarn prices, to fill military contract orders, have been reduced from 10 to 23¢ per lb. to a basis of $1.77 to $2.80.

Hosiery Manufacturers Salesmen's Association, New York, held its first membership meeting on April 27 and

RAYON REPORTS

Presented Monthly by American Viscose Corporation, New York, N. Y. JUNE, 1943

AMERICAN VISCOSE REDUCES RAYON STAPLE PRICES

The first major change in viscose process rayon staple prices since 1937 was made recently when the Corporation reduced the price of its rayon staple one, and in some cases, two cents a pound. The price of dull staple fiber was set at the same level as the bright.

High strength "Avisco" type staple is now offered in 1.5 denier and coarser, at the same price formerly made on the bright type of "Fibro" regular strength rayon staple.

The price of bright tow (parallel filaments of 160,000 total denier and heavier) is unchanged, but the price of the dull type has been lowered, and it is now offered at the same level as the bright.

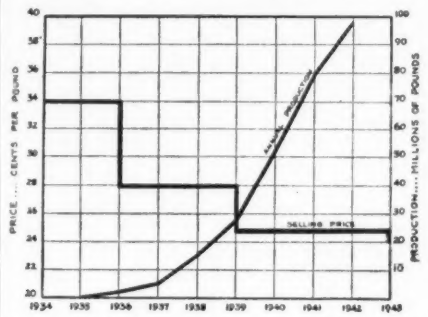


Chart showing increase in production and decrease in price of standard Fibro rayon staple since 1934.

Spun dyed rayon staple in black and gray was reduced one cent a pound.

The practical effect of the new price structure is to offer to the trade a higher-strength fiber at the former price of the standard fiber. This is another example of the way efficiencies in production and the use of new techniques have combined to produce better textile fibers at prices that have come down as quality has gone up.

TOWARDS THE FUTURE!

The expanding military uses of rayon are prophetic of post-war benefits. By improving methods of handling yarns and working to reduce weaving imperfections, weavers are developing an improved product and a greatly advanced technology of both yarn and fabric production. War needs have accelerated development in the industry, and many weaving mills are using counts never before attempted. As a result, they are finding that they have a much greater versatility in producing goods than they ever imagined.

Interchange of information among producers has eliminated many unnecessary and expensive experiments with various types of yarns and fabrics.

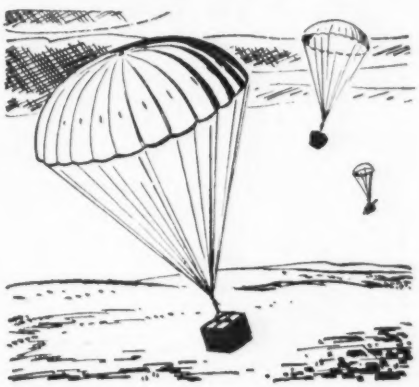
The use of rayon in industrial fabrics will be of increasing importance to industry after the war. Special types of rayon fibers used in tire yarns, cargo parachutes, and for other heavy duty uses will be freed for peacetime applications, and the consumer will benefit from many advantages.

WAR HELMET FOR WOWS

A new spun rayon and cotton scarf containing "Fibro" staple fiber has been developed as headgear for Women Ordnance Workers. The use of such scarfs has been urgently recommended by the U. S. Army Ordnance Department to eliminate the danger of women workers' hair being caught on moving parts of machinery. The new scarf has been made available to women ordnance workers throughout the country.

ELASTIC FOR WAACS

The Philadelphia Quartermaster Depot has purchased 75,000 yards of "Vinyon"* braid for use as waistbands in the winter undergarments of the Women's Army Auxiliary Corps. This braid is made of American Viscose Corporation's new type "Vinyon" yarn possessing high elasticity.



LEWISTOWN PLANT CONVERTS

A program of converting approximately one-half of the manufacturing facilities of the Lewistown, Pa., plant of American Viscose Corporation from the production of regular strength viscose rayon yarns to higher strength yarns for use in military equipment, has been partially completed and these yarns are being shipped to users. The conversion provides yarns of the type needed for fragmentation bomb parachutes, aerial delivery and cargo parachutes and aerial tow targets. The Marcus Hook plant of the Corporation is now 100% on war work.

*T. M. Reg. U. S. Pat. Off.

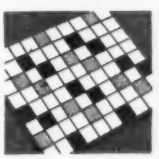
Copr. 1943—American Viscose Corp.

MAKE USE OF 4-PLY SERVICE!

1 PRODUCT RESEARCH
Helps you to get the right yarns.

3 TEXTILE UNIT
Helps solve production and finishing problems.

2 FABRIC DEVELOPMENT
Helps you design new fabrics.



4 "CROWN" TESTED
Helps provide scientific selling facts.

AMERICAN VISCOSE CORPORATION

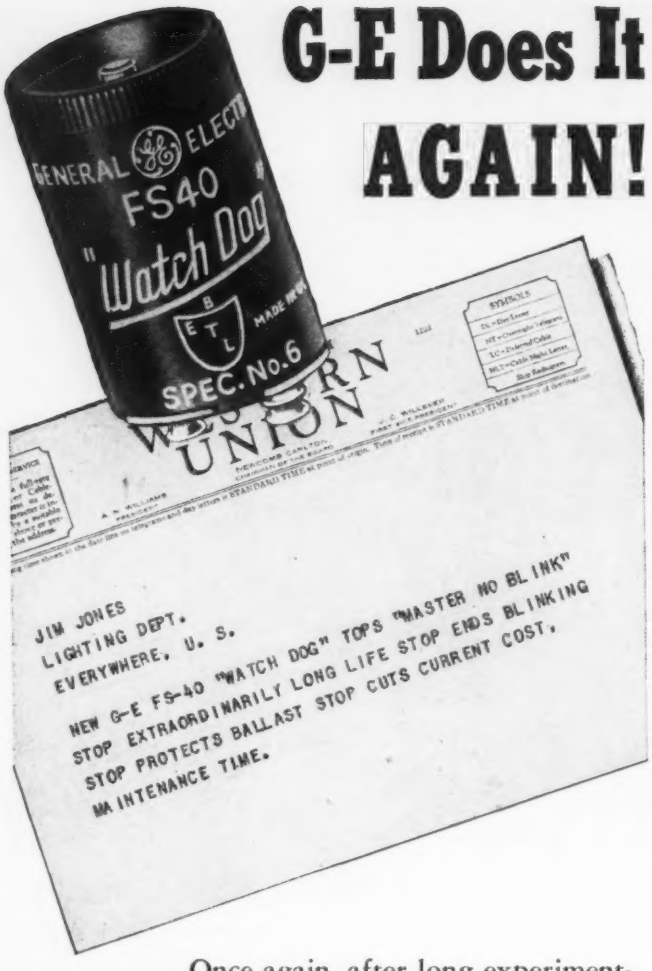
Producers of CROWN* *Rayon Yarns and Staple Fibers*

Sales Offices: 350 Fifth Ave., New York City; Providence, R. I.; Charlotte, N. C.; Philadelphia, Pa.

Plants at: Marcus Hook, Pa.; Roanoke, Va.; Lewistown, Pa.; Nitro, W. Va.; Parkersburg, W. Va.; Meadville, Pa.; Front Royal, Va.

*T. M. Reg. U.S. Pat. Off.

G-E Does It AGAIN!



Once again, after long experimenting, General Electric contributes to better, more economical and more satisfactory fluorescent lighting. The new FS-40 "Watch Dog" has everything. Here are its major features:

1. Average life equivalent to the life of ten 40-watt lamps under specified test conditions.
2. Ends blinking and flickering by cutting out dead lamps.
3. Positive lock-out with all current off.
4. Long ballast life by eliminating current flow.
5. Instant lamp replacement because there's no cooling period.
6. Conserves vital war materials.
7. All of this means reduced costs to you.

SEND THE COUPON FOR COMPLETE DETAILS

Section G632-109
Appliance & Merchandise Dept.
General Electric Co., Bridgeport, Conn.

Gentlemen: Please send additional information on your new FS-40 Starter to:

Name.....

Company.....

Address.....

City..... State.....

GENERAL ELECTRIC

Jere Quinlan (on the 50th anniversary of his association with the trade) was elected president. George Carlson and Arthur Hafela were elected vice-presidents and Walter McChesney, secretary-treasurer.

Roselle, a jute-like fiber that may have a commercial future, is being grown experimentally in several of the tropical Americas as part of the inter-American war materials program. Fiber authorities say roselle probably could be used instead of jute for burlap bags, ropes, cord and many other purposes.

Bradford-Durfee Textile School, Fall River, Mass., at its graduation exercises on May 28 gave 15 diplomas and 7 certificates to members of the day classes, and 14 diplomas and 184 certificates to the evening classes.

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Textile Business Gets More Restrictions

Cotton goods business in Worth Street continued routine last month. It seems likely that that sentence will describe the trade for the duration. Changes and problems rise and fall on the Washington front, and the selling end of the business moves along in the resulting grooves. Further simplifications and limitations were effected recently. Mills are interested only in high priority business, and with recent setting of ratings on the more essential divisions of civilian trade, there is more than enough of this to go around. Raw cotton at spot holds a big premium over futures because of the Government's concentrated use of the better grades and neglect of the lower grades.

Wool goods mills are releasing small quantities of additional yardage for fall, but until there is another increase in civilian wool quotas there will be little expansion likely in this trade. Efforts are current, both in the wool industry and Washington, to allay consumers' fears as to clothing supply and thus stave off panic buying and need for rationing. Almost weekly some agency issues the statement that there will be no rationing of clothing—at least for 1943. Simplification in this field will probably involve merely concentration by individual mills on fewer styles.

Rayon manufacturers are facing a cut in ceilings whether they like it or not. This field has been steadily lowering its prices as production increased and unit costs declined, but with higher wages and other charges there is reluctance to follow this course when the cut comes out of operating margins. Real scarcities of rayon are developing in branches of the civilian field with no relief in sight.

Hosiery sellers affected by MPR 339 (principally rayon full-fashioned) have been reluctant to commit themselves ahead because of the painful limitations under which they must work if that order is to be obeyed, and the constant hope that sensible modifications be made. However, changes in constructions due to this order and to the WPB simplification plan are generally in the works, and there is no resistance to the simplification idea where intelligently worked out. Half-hose sellers are concerned over their yarn supplies.

Underwear mills expect an increasing scarcity of civilian goods, especially in the heavier weights, for next fall's distribution. Substitution of lighter garments may be one solution, but it may not be a happy one with fuel shortages looming for the coming winter. Concentration on fewer styles will doubtless increase unit production, but sellers believe it will be inadequate to close up the gap already existing in retail stocks throughout the country.

Outerwear manufacturers are pursuing the development of blends and style simplification to the end that they will make a little go a long way. Garments from this field will be counted upon next winter even more than last to make up deficiencies in fuel or in other types of warm clothing.

Here's the sizer you'll want NOW

Courtesy, American Viscose Corp.

and AFTER the war

JOHNSON RAYON WARP SIZER

During the war our machines are being used . . .

1) In sizing nylon warps for parachutes, to speed up production, make more uniform warps and eliminate tight and loose ends.

2) To size high tenacity rayon.

3) To treat yarns used in making cord for tire fabric.

4) To size warps for making uniform cloth and linings.

5) To size warps of rayon, acetate, spun rayon and other synthetic yarns for civilian use, as in the past.

●

Acceptance for Johnson machines has been confirmed by Johnson origination of many refinements that give positive control of stretch, temperatures and the other factors that make for better warps and a minimum of broken ends.

Write for illustrated booklet.

CHARLES B. JOHNSON MACHINE WORKS

Exclusive Specialists in Sizing Equipment

Paterson, New Jersey

What do you expect of

Certified Climate?

Are you figuring on stepping up your machine operating speeds?

Do you expect to benefit by higher and more dependable REGAINS; more uniform numbers, of greater strength, smoother and more compact drafting; less waste and fly?

Or — even without an increase in operating speeds, do you figure that fewer stops, fewer piecings, fewer seconds will step up production?

Textile Air Conditioning results most satisfactorily when production men and Certified Climate engineers work together as partners.

Parks-Cramer Company

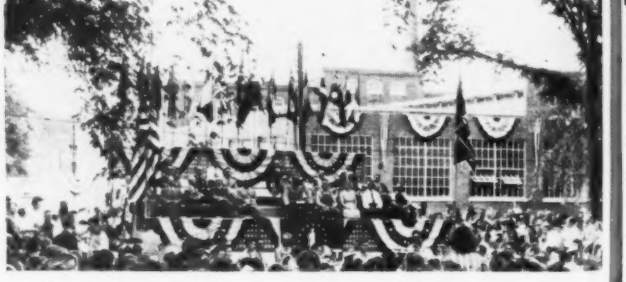
Fitchburg, Mass. **Charlotte, N. C.**

Recent "E" Presentations

PROXIMITY MFG. CO. and REVOLUTION COTTON MILLS, Greensboro, N. C.—Herman Cone, president of these two major divisions of the Cone mill group, receives the "E" pennant from Col. Robert T. Stevens, QMC. Lt. Huger S. King, U.S.N., presented the "E" pins to representatives of employees.

GOSSETT MILLS, Anderson, S. C.—Four "E" pennants were presented to B. B. Gossett for Ladlassie, Toxaway, Riverside and Pendleton Plants by Major General Edmund B. Gregory, Quartermaster General, U. S. A. Captain Guy E. Baker, U. S. N., Charleston Navy Yard, presented the Army-Navy pins to employees' representatives.

FRANK IX & SONS, INC., Charlottesville, Va.—(left to right): William E. Ix; Frank Ix, Jr., vice-president and plant manager; Alexander F. Ix; Frank Ix, Sr., president and founder; Governor Colgate W. Darden, Jr., of Virginia; Corporal Braebaer (a hero of North African campaign), and Major Lee B. Harr, of Army Air Forces.



ARAGON (Ga.) MILLS of A. D. Juilliard & Co.—Col. Hugh S. Harpole, in charge of engineering division of Jeffersonville QM Depot, presented the "E" pennant. Robt. Westaway, president of Juilliard accepted it. Lt. M. C. Verdery, U.S.N., presented the pins to employees' representatives.

MILLS THAT PRODUCE fine fabrics like those used in the wool slacks and tweed jacket shown here, are among the most consistent users of Colgate-Palmolive-Peet processing agents. They know from experience they can depend on C.P.P. soaps and detergents for uniformly excellent work in all processing operations.

Ask your local Colgate-Palmolive-Peet representative for information on the full line of C.P.P. wetting, fulling, scouring and dispersing agents. They are equally effective on any type of fabric, regardless of style and material changes resulting from the war.

Jersey City, New Jersey
Jeffersonville, Indiana

COLGATE-PALMOLIVE-PEET CO.

Kansas City, Kansas
Berkeley, California

COLGATE KWIKSOLV • COLGATE FORMULA 25 • BADGER FLAKES • COLGATE WHITE SOAP FLAKES • ARCTIC CRYSTAL FLAKES

WHEN a Solvay Technical Service man receives an invitation from you, perhaps so that you may obtain an outside viewpoint on a problem which has proven particularly difficult to solve, it is sometimes necessary to supply him with information of a confidential nature.

... That is a point on which some customers might hesitate to avail themselves of Solvay Technical Service. Please be assured that any information that you may impart to a Solvay Technical Service man remains in strictest confidence. It is used only insofar as it is necessary to help solve your particular problem. When consultations are concluded, your problem is a closed book with Solvay Technical Service.

You will find on the staff of Solvay Technical and Engineering Service men of the highest type who have been especially trained to cope with your problems as they pertain to alkalies and related products. They are at your service. Please call on them without hesitation.

SOLVAY SALES CORPORATION

Alkalies and Chemical Products Manufactured by The Solvay Process Company

40 RECTOR STREET NEW YORK, N. Y.

BRANCH SALES OFFICES:

Boston • Charlotte • Chicago • Cincinnati • Cleveland • Detroit
New Orleans • New York • Philadelphia • Pittsburgh • St. Louis • Syracuse

SOLVAY

TRADE MARK REG. U. S. PAT. OFF.

TECHNICAL SERVICE

NEWS ABOUT MEN

William N. Banks, of Grantville (Ga.) Mills and a former president of the American Cotton Manufacturers Association, has been elected chairman of the board of directors of Cotton-Textile Institute, New York, succeeding **Goldthwaite H. Dorr,** who resigned some time ago to become special assistant to the Secretary of War.

Charles A. Harris, who has been associated with the Marion (N. C.) Mfg. Co. for 20 years, has been elected vice-president of the company. He was formerly secretary. He is succeeded in this latter post by **Terry A. Moore.**

Charles J. Huber, formerly vice-president of United States Testing Co., is now development engineer with Johnson & Johnson, with headquarters in New Brunswick, N. J.

T. D. Johnson, vice-president of Alabama Power Co. and long head of the industrial development division of the company, has resigned effective June 15 to join the executive staff of Vanity Fair Mills, Inc., hosiery manufacturers, at Reading, Pa. Mr. Johnson will be succeeded by **J. R. Lester.**

J. E. Sirrine, head of the engineering firm of J. E. Sirrine & Co., Greenville, S. C., was presented with a scroll of honor May 25 at the 27th anniversary luncheon of the Greenville Rotary Club, in recognition of his services to his community, state and nation. He was the club's first president.

Robert E. Freidrich, Jr., of l'Opera Hosiery Mills, Glassboro, N. J., has been elected

M. EARL HEARD, dean of Philadelphia Textile Institute since 1940, who resigned that connection early this month to become director of research for the West Point (Ga.) Mfg. Co. He has been elected to the board of governors of the school.

WILLIAM N. BANKS, newly-elected chairman of the board of Cotton-Textile Institute.

first president of the newly-organized Independent Hosiery Manufacturers Association, which includes the small hosiery firms of Pennsylvania, New Jersey, Delaware and Maryland. **Edward M. Rand,** Market Street National Bank Building, Philadelphia, is secretary-treasurer.

Thomas G. Pennington, of A. M. Tenney Associates, New York, has been elected president of the New York Club of Philadelphia Textile Institute Alumni.

B. B. Gossett, Charlotte, N. C., president of Chadwick-Hoskins Mills and the Gossett Mills, has been appointed an industry representative on the fourth Regional War Board, succeeding **J. L. Lanier,** West Point, Ga.

R. E. Henry, president of Dunean Mills, Greenville, S. C., and of other mills, has been appointed a district chairman of the Committee for Economic Development, Washington, D. C.

J. R. Millar has been appointed chairman of the board of California Cotton Mills Co., Oakland, Calif., and **B. A. Olsen** has become president and general manager. Mr. Millar is president and general manager of National Automotive Fibers, Inc.

Donald Comer, chairman of the board of the Avondale Mills, Sylacauga, Ala., has been appointed a member for management of an International Labor Office committee to study the probable position of the textile industry after the war.

John F. McGlynn, hosiery manufacturer, has just been elected treasurer of the Keystone Hosiery Manufacturers' Association, Reading, Pa. This association comprises the manu-

Right Dress!

AND FAST COLORS FOR WORK WEAR

WOMEN do not stop being women when they become war workers. They are still style conscious. They still want to appear at their best.

But they know that work in war plants imposes new demands on clothing. It is subject to grime, grease, perspiration and frequent launderings.

This calls for fast dyes—the fastest available. For colors must not fade noticeably during the long, hard life of the garment. Vat dyes, which can be used on cotton, rayon or linen, should be your first choice when Uncle Sam can spare them.

America's women war workers will expect fast color in tomorrow's clothing.

Build good color value into fabrics for work clothing. Use the fastest dyestuffs available. It helps conserve America's supply of suitable fabrics. And it helps you build your reputation for the increased post-war market. E. I. du Pont de Nemours & Co. (Inc.), Organic Chemicals Department, Dyestuffs Division, Wilmington, Delaware.

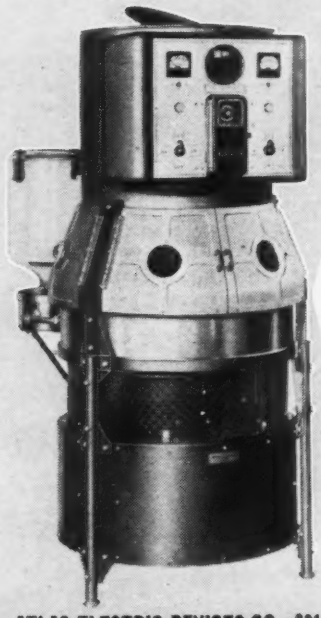
DU PONT DYESTUFFS
REG. U.S. PAT. OFF.

DYESTUFFS

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

FADE-OMETER

for accelerated color fading



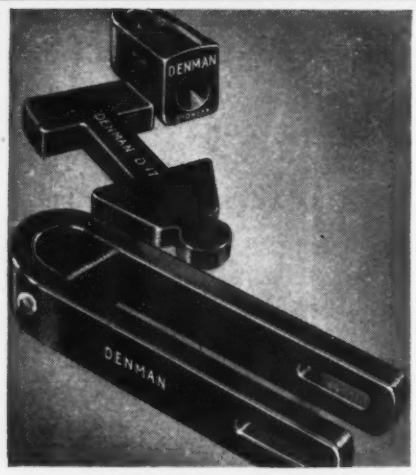
• Originated and made solely by Atlas. Used all over the world and accepted as the standard color testing machine by the textile industry for over a quarter of a century.

Specimens are rotated around the Atlas Enclosed Violet Carbon Arc—the closest approach to natural sunlight. Temperature automatically controlled. No loss of light intensity of arc during life of machine.

ATLAS ELECTRIC DEVICES CO., 361 W. Superior Street, Chicago, Ill.

ATLAS-OMETERS

WEATHER-OMETER ★ LAUNDER-OMETER ★ FADE-OMETER



DENMAM

PICKERS LUG STRAPS

HOLDS-UPS

INSURE

Lowest Cost Per Loom Per Year

The Terrell Machine CO., *Inc.*

CHARLOTTE, N. C.

James F. Notman, Needham, Mass. . . . . N. E. States
E. W. S. Jasper, Inc., Elizabeth, N. J., Penn., N. Y. and N. J.
W. J. Westaway Co, Ltd, Hamilton & Montreal . . . Canada
Geo. Thomas & Co., Manchester, Eng. . . . European Agent

NEWS ABOUT MEN

facturers of Reading and Berks County. Mr. McGlynn succeeded **C. Hunter Biehl** who resigned.

Lewis Price, president of the Citzens & Southern Bank of LaGrange, Ga., has resigned to become industrial relations manager for Callaway Mills of that same town.

William Gallo, formerly with Norman Finishing Co., Newburgh, N. Y., is head of a newly-organized dyeing and finishing plant organized as the Poughkeepsie (N. Y.) Finishing Co.

Thomas Nelson, dean of the Textile School of North Carolina State College, Raleigh, N. C. for the last 42 years, has been elected first president of the newly-created National Council of Textile School Deans. **Charles H. Eames,** president of Lowell (Mass.) Textile Institute, has been elected vice-president.

Vance L. Cathey, of Atlanta, a member of the current graduating class of A. French Textile School of Georgia Tech, has been awarded the medal which has been presented annually for the last 17 years to the outstanding member of the graduating class by the Cotton Manufacturers Association of Georgia.

Walter E. Greer, Jr., secretary and assistant treasurer of Judson Mills, Greenville, S. C. was recently appointed head of the Synthetic Fabrics Section in the Synthetic Textile Branch of WPB, Washington.

T. W. Bridges, formerly manager of the textile school operated at Spray, N. C., by Marshall Field & Co., has been named manager of the new North Carolina Vocational Textile School which has been established near Charlotte, N. C. Mr. Bridges plans to have 17 instructors for the textile work which will begin in September. These instructors will be active overseers in nearby cotton mills, who will work at the school outside of their regular time at the mills.

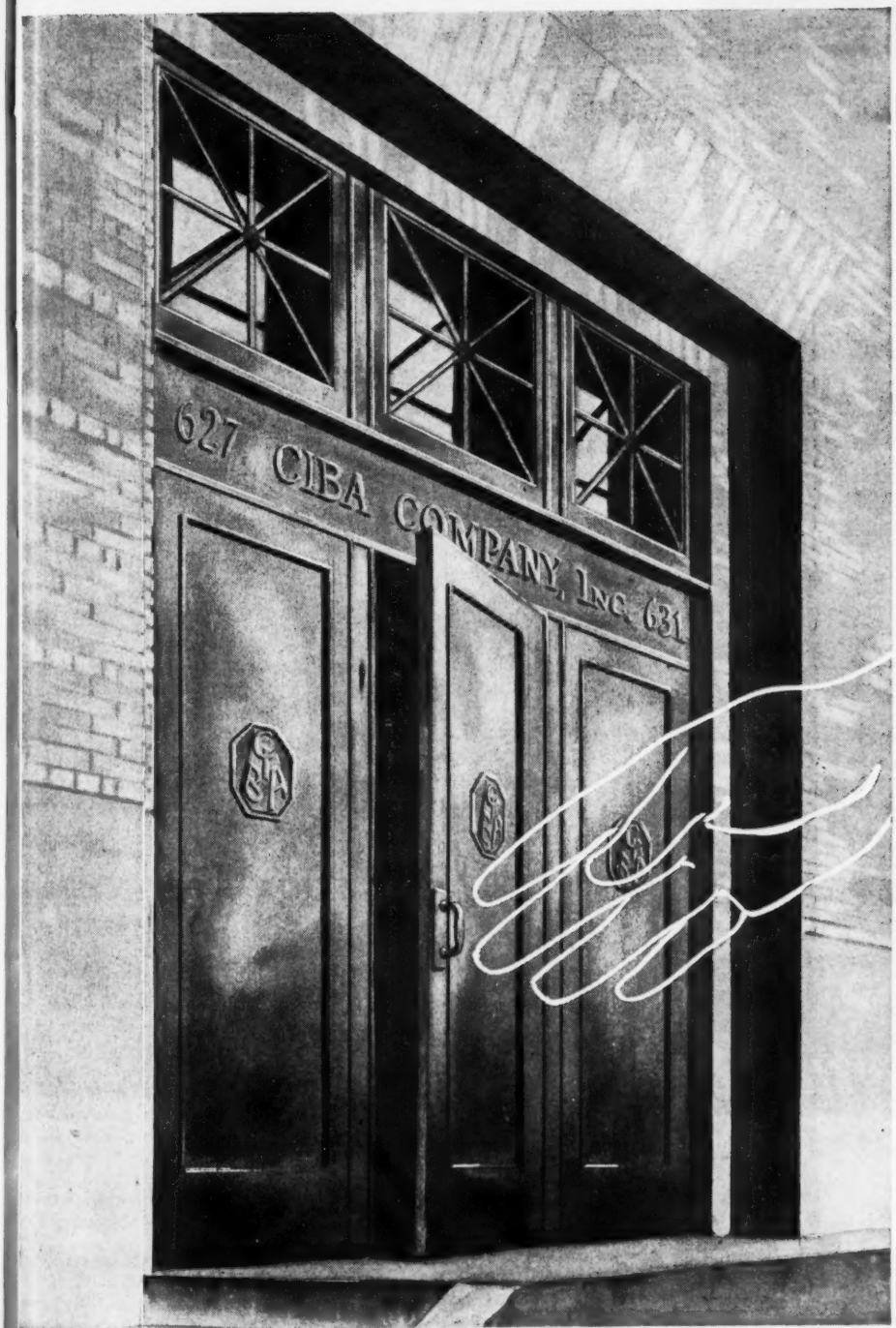
Eric Alliot, vice-president of the New York Cotton Exchange is the new president of the exchange for the coming year, succeeding **Robert J. Murray** who has put in a three-term period. **John H. Scatterty** has been made vice-president, and **William J. Jung** is serving his fourth term as treasurer.

Russell C. Gregg, of Memphis, Tenn., has been elected president of the American Cotton Shippers Association, succeeding **A. M. Grayson** of Dallas, Tex.

William C. Planz, vice-president of Neuss, Hesslein & Co., Inc., has been elected president of the Textile Export Association of the U. S., succeeding **Frank H. Hillery** of Wellington Sears Co., Inc., who served for the last seven years. **N. S. W. Vanderhoef,** vice-president and treasurer of Turner Halsey Export Corp., was elected vice-president. **W. Ray Bell** was reelected treasurer, and **John W. Murray** was again named secretary.

James R. Killian, Jr., son of James R. Killian, Sr., president of Georgia Webbing & Tape Co., Columbus, Ga., has

HERMAN P. WALTER, secretary to Moses Pendleton, president of the American Woolen Co., New York, who on May 11 celebrated the 50th anniversary of this association with the company and its principal predecessor, the Washington Mills which he joined in 1893. He was the recipient of many floral tributes, a silver tea service, a check from the company and a month's vacation.



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ABINGTON WEAVER'S KNOTTER

This knotter provides such an easy, sure, quick way to produce a weaver's knot, that it is the natural answer to the problem of getting production from green help on winders. Tails are automatically scissor clipped and can be made any length from 5/16" down to minus 1/16". Knots are very tight and compact, acceptable in thread, and in fabrics to be rubber coated. Let the Abington Knotter make your trainees veterans in production ability!

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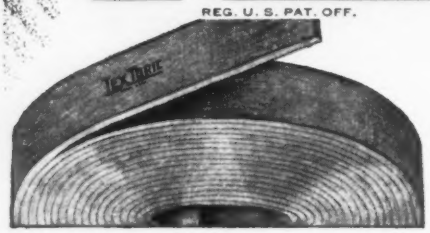
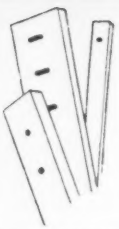




ANY WIDTH
ANY LENGTH
ANY PUNCHING

When we introduced TEXTORIC, the synthetic loom strapping, we suggested *trial* orders and *test* runs. We still offer TEXTORIC on this basis, but we now have plenty of experience records—proof under actual production conditions . . . . TEXTORIC is an important development in loom strapping—uses no critical materials. A synthetic of scientifically controlled uniformity with great strength.

W. D. DODENHOFF COMPANY
619 RUTHERFORD STREET
GREENVILLE, SOUTH CAROLINA

NEWS ABOUT MEN

been appointed executive vice-president of the Massachusetts Institute of Technology, Cambridge, effective July 1. He has been executive assistant to the president of this college since 1939.

Karl Robbins, of New York, president of Pinehurst Cloth Mills, Inc., Hemp, N. C., has been honored in the recent change in name of the town to Robbins, N. C.

Burton Frierson, vice-president of Dixie Mercerizing Co., Chattanooga, Tenn., has been appointed chairman of a new post-war planning committee of the Chattanooga Manufacturers' Association.

Herbert A. T. Smith, formerly of Manufacturers Chemical Corp., Berkley Heights, N. J., has joined the sales development department of American Viscose Corp. at Marcus Hook, Pa. **Raymond Bourrioux,** formerly with the United Piece Dye Works, has joined the American Viscose Corp.'s Crown Tested department.

Frank I. Neild, for many years a prominent textile mill executive of New Bedford, Mass., and more recently manager of a cotton mill in Manila, is in an internment camp and may be addressed as follows: "Civilian Interne Mail, Frank I. Neild, Santos Tomas, Manila, Philippine Islands, via New York, N. Y."

A. C. Siegel, recently marked the 20th anniversary of his association with the sales department of Industrial Rayon Corp., New York.

Chas. H. Peckelis, who has been on leave of absence from Howard E. Bishop Selling Agency, New York, because of illness, has resigned. He was sales manager of the rayon goods department.

Benjamin Blackman, weaving technician for many years with Belding-Hemingway-Corticelli, New York, has resigned and will enter business on his own account, plans for which will be announced later. Morris Zingler has succeeded him.

S. M. Harrison, secretary and a member of the board of directors of Echota Cotton Mills, Calhoun, Ga., has been appointed general superintendent of the company succeeding the late J. J. Nelson. **W. G. Thomason,** who has held the position of night superintendent of the plant, has been promoted to day superintendent, and **Clarence Driver** has been made night superintendent.

JOSEPH E. SAMPSON, just graduated from the textile school of N. C. State College, who has been awarded the medal given annually by the National Association of Cotton Manufacturers to the most proficient textile student in the graduating class. Mr. Sampson lives at Guilford College, N. C., and is now in the Army at Camp Wheeler, Ga.

Col. Joseph W. Evans, of Evans & Co., Houston, Tex., and chairman of the Houston Port Commission, has been elected president of the Houston Cotton Exchange.

B. K. MacLaury has been named advertising and sales promotion manager of Bigelow Sanford Carpet Co., Thompsonville, Conn.

C. Hunter Biehl, secretary and general manager of Busy Bee Hosiery Co., Reading, Pa., and Mohnton, Pa., has retired from the company to devote himself to farming and stock raising at his large farm near Alleghenyville, Pa. Mr. Biehl may reenter the hosiery knitting field later in the year.

K. O. Every, formerly of Pendleton, S. C., has become superintendent of carding and spinning of Leward Cotton Mills, Worthville, N. C.

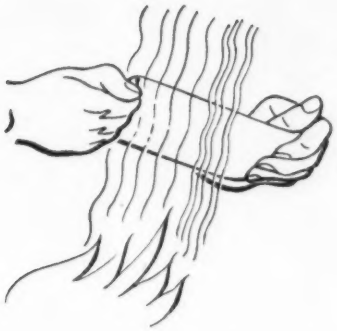
Robert R. Peebles, head of the irregular goods department, Cotton and Rayon Division, Pacific Mills, New York, has retired from active business. He has been with Pacific Mills since 1926, coming to that company from Claflin & Co. **W. T. Roff** assistant to Mr. Peebles, becomes the new head of the department.

H. L. Thompson has accepted the position of superintendent of weaving of Greenwood (S. C.) Cotton Mills.

W. S. Merritt has been promoted to general superintendent of spinning of Louisville (Ky.) Textiles.

James L. Bryant, lately assistant to the general manager

Range of uses broadened by this ETHOCEL property



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RESISTANCE TO HEAT

STABILITY TO LIGHT

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COMPATIBILITY TO WIDE RANGE OF PLASTICS AND RESINS

LOW FLAMMABILITY

SOLUBILITY IN LOW COST SOLVENTS

FLEXIBILITY AT LOW TEMPERATURES

ETHOCEL's unusual stability to heat is strikingly illustrated by a simple test: After 16 hours' heating in a closed vessel at 120° C., ETHOCEL retains more than 90% of its original viscosity.

ETHOCEL lacquers and emulsions have been used to provide a variety of finishes for fabrics particularly in those instances where heat stability is a problem. It should be further pointed out that the decomposition of ETHOCEL does not produce acids or free gases which have any deleterious effect on textiles.

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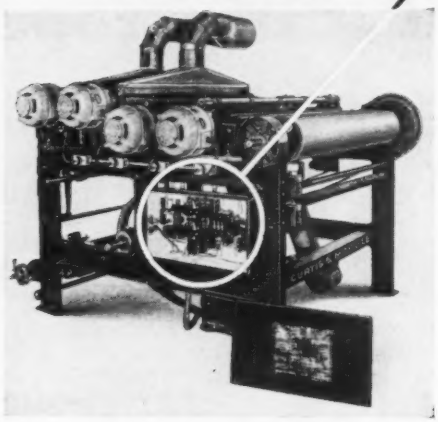

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From the wonder science, Electronics, comes this remarkable timing device which is now included in the Automatic Seam Protector on Type C M R Shear. It is the latest of a series of improvements brought about to keep C M R Shear the most efficient machine for removing surface and selvage threads.

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Rapid

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MOISTURE TELLER

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Here's an inexpensive, practical moisture tester and control. Assures savings in processing time, reduces rejections, and improves product quality. Write for literature on Moisture testing by drying.

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NEWS ABOUT MEN

of Walther Mfg. Co., Philadelphia, is now with Pacific Mills, New York, as fabric development supervisor in cottons and rayons.

John F. Eastham, superintendent of the Vamoco Division and the Mayfair Division of Burlington Mills, Greensboro, N. C., has resigned to accept the position of general superintendent of Manchester, N. H., and Peterborough, N. H., divisions of Verney Mills, Inc.

Walden Bassett has been transferred from Celanese Corp., Cumberland, Md., to the New York office of the company.

James C. Smith, who has been in the banking business at Martinsville, Va., has accepted a position with Sale Knitting Co., of the same city. He may return to the bank after the war.

Mrs. Lilla Brown Chapman, for more than 30 years secretary to **Wm. D. Anderson,** now chairman of the board of Bibb Mfg. Co., Macon, Ga., retired May 1. Before her retirement that week, Scott Russell, president of the Bibb company, presented her with a service certificate along with a $1,000 war bond as an appreciation of her services to the company.

A. W. Eichelberger, for the last two years superintendent of A. Q. Mills, Timmonsville, S. C., has resigned to accept a position with Celanese Corp. of America, Cumberland, Md. Mr. Eichelberger had previously been employed by Celanese before going to A. Q.

Raymond Bourrioux, formerly associated with United Piece Dye Works and Sayer Dyeing & Finishing Co., has joined American Viscose Corp. in the "Crown" Tested Department. He will be in charge of the dyestuff research section of the New York office laboratory.

Langdon S. Ligon, Greenville, S. C., a student in the textile school of Clemson College, S. C., has been awarded the National Association of Cotton Manufacturers' medal presented to the textile engineering senior with the highest average.

George E. Kennedy has been appointed purchasing agent for the Thrift unit of Kendall Co., Paw Creek, N. C., succeeding **Maurice L. Clemence.**

Edward W. Westhead has been appointed an assistant treasurer of American Viscose Corp., New York. Mr. Westhead continues as auditor of the corporation.

T. S. Crow, formerly of Spartanburg, S. C., but more recently of Lexington, N. C., is now overseer of carding of the Wade Mfg. Co., Wadesboro, N. C.

Chester L. Eddy has become plant manager at Narragansett Finishing Co., Westerly, R. I. He recently was with the Renfrew Bleachery and Augusta Chemical Co.

W. S. Merritt has been appointed general superintendent of spinning of Louisville (Ky.) Textiles, Inc., having formerly been night superintendent.

C. B. Wall has become superintendent of J. & C. Cottons, Ellijay, Ga.

Philip B. Raiford has become superintendent of Jordan Spinning Co., Cedar Falls, N. C.

James L. Beaver, who has held the position of superintendent of weaving of Brookford (N. C.) Mills, has resigned.

T. B. Reynolds has resigned as superintendent of Berryton (Ga.) Mills and become superintendent of Oconee Textile Co., Whitehall, Ga.

W. P. Johnson, who has been head of the weaving department of Inman (S. C.) Mills, has been promoted to plant superintendent.

J. W. Reynolds, formerly of Spartanburg, S. C., has become assistant superintendent of Virginia Mfg. Co., Fork Shoals, S. C.

J. W. Skipper, formerly of Dallas, N. C., has become night superintendent at Hyde Park Mills, Inc., Covington, Tenn.

L. E. Holler, formerly of High Shoals, N. C., has become superintendent of the cloth room of Locke Cotton Mills, Concord, N. C.

Earl Cartee, superintendent of carding and spinning of the Ora unit of Dover Mill Co., Shelby, N. C., has resigned to become general overseer of carding at Brookside Mills, Knoxville, Tenn.

George E. Nichols is now overseer of spinning at American Woolen Co. plant, Norwich, Conn. He previously held that same position at Gordon Woolen Mills, Newport, N. H.

Lee Clark, formerly of Langdale, Ala., has become assistant superintendent of Palmetto (Ga.) Cotton Mills.

Caustic Soda

PROMPT SHIPMENTS

QUICK HANDLING

Penn Salt Liquid Caustic Soda is shipped in tank cars specially designed for speedier, safer unloading. These modern 8000-gallon tank cars have a protective lining, are insulated and are equipped with caustic resistant valves and interior fittings. They can be quickly and completely emptied—no wasted caustic, no lost time.

Penn Salt Caustic Soda is supplied as 50% and 72-73% solutions in tank car quantities; as a solid in 750 lb. drums; or in flake form in 400 lb. and 125 lb. drums.

Our technical staff is at your service for help with handling problems. Write for complete information.

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Speeds Production

★ More and More textile manufacturers are installing the *new* CARBOMATIC RADIANT HEAT GENERATOR for drying and curing. They find that CARBOMATIC RADIANT HEAT GENERATORS . . .

- ★ Dry fabrics *quicker.*
- ★ Have easily adjusted, *automatically controlled* temperatures from 150° to 2200° F.
- ★ Greatly improve the *quality* of the finished product.
- ★ Are *more economical* than any other drying method . . . save labor costs and space.

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ENGINEERS AND MFGRS. OF RADIANT HEAT BURNER EQUIPMENT

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Offices in Providence, R. I., and Charlotte, N. C.

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FUNGISTATIC—BACTERIOSTATIC WATER REPELLENTS

(On approved Army lists)

A significant new development offering a single bath treatment, water or solvent soluble, for *mildewproofing and water repellency.* Meet all applicable Government specifications. Non toxic under intended conditions of use, may be applied to wide variety of fabrics. Very attractively priced. Inquiries invited from Army Contractors.

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APPRAISALS • REPORTS • WATER TREATMENT • WATER SUPPLY • SURVEYS • POWER

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Textile Men in Armed Services

Jerome W. Stavish, formerly in charge of the export department for Lamport Co., Inc., New York, is now first lieutenant with the Intelligence Division of the Army.

Alvin L. Pierce, formerly an employee in the spinning room of the North American Rayon Corp., Elizabethtown, Tenn., and now serving as corporal in the Army, has been awarded the Silver Star by the War Department for heroism in North Africa.

John C. Wilmerding, who before going into active duty in the Navy two years ago was in the acetate sales division of the American Viscose Corp., New York, has been appointed lieutenant (s.g.) and made executive officer of his vessel which is on duty in the southwest Pacific.

Robert C. Collier, Jr., Montezuma, Ga., formerly associated with his father in the operation of the Montezuma Knitting Mills, now in the armed services, has received his commission as a second lieutenant in the Army Quartermaster Corps at Camp Lee, Va., and has been transferred to Tampa, Fla.

Hugh S. Harpole, head of the engineering division of the Jeffersonville (Ind.) Quartermaster Depot, formerly lieutenant-Colonel has been promoted to colonel. He was graduated from the Quartermaster School at Philadelphia in 1926.

THURMOND CHATHAM, president of Chatham Mfg. Co., Elkin, N. C., since February, 1942, a lieutenant commander in the Navy, has just been promoted to rank of commander.

JAMES H. KENNEDY, JR., lately promoted from first lieutenant to captain. Since June 9, 1942, Captain Kennedy has been officer in charge of inspection of woolen and cotton cloth at the Philadelphia Quartermaster Depot. He had been a professor at the Lowell Textile Institute for 17 years.

Alex Davis, now a lieutenant-colonel in Ordnance Department of the Army and formerly manager of the sales department of Saco Lowell's Southern branch at Charlotte, S. C., has received a Distinguished Service citation from the War Department for his part in the redesigning of the crate which carries the bomb tail fin on an American bomber.

Samuel I. Parker, on leave from his position as general sales manager of Ciba Co., New York, has been promoted from Major to Lt. Colonel. Col. Parker has been at Fort Benning, Ga., since last summer. He served with great distinction in World War I, and received the Congressional Medal of Honor and many other decorations.

John Reed, an official of King Cotton Mills, Dalton, Ga., has received his appointment as lieutenant in the Coastal Air Patrol, and has assumed his duties at St. Simon's Island, Ga.

Carl V. Odom, formerly with Darlington (S. C.) Mfg. Co., has been commissioned an infantry lieutenant in the Army and is stationed at Fort Bennington, Ga.

James P. Kinard, previously manager of the gray goods department for William

Note to Military Contractors

APPROVED COMPOUNDS FOR MILDEW-PROOFING

MILDEW-PROOF TYPE 2 (Cuprammonium)*

MILDEW-PROOF TYPE 3 (Copper Ammonium Fluoride)*

Two thoroughly dependable compounds for mildew-proofing; tested and proved by finishers of military fabrics. These products are approved for government work and widely used in treating U. S. service burlap and osnaburg.

MILDEW-PROOF TYPE 2 and TYPE 3 avoid solvent difficulties and are applicable to all vegetable fabrics (cotton, linen, jute, paper, sisal, hemp). Suited for mold, mildew and rot resistance under every climatic condition. Samples and further information upon request.

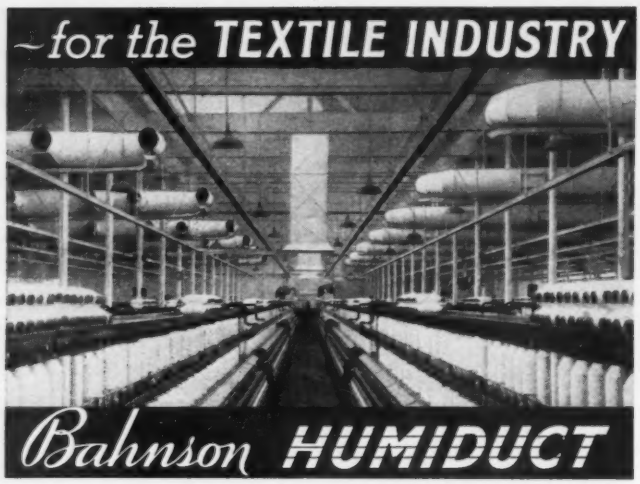
*These two products, designated as Types 2 and 3 in a recent release by U. S. Army, meet all government specifications.

WOLF BRAND PRODUCTS

JACQUES WOLF & CO.

Chemicals PASSAIC, N. J.

WAREHOUSES: Providence, R. I., Philadelphia, Pa., Utica, N. Y., Chicago, Ill., Greenville, S. C., Chattanooga, Tenn., Knoxville, Tenn., Charlotte, N. C., Milwaukee, Wisc., Columbus, Ga.



The Bahnson Humiduct combined with the Westinghouse Precipitron gives positive lateral circulation of electrically cleaned air with controlled humidity.

The Bahnson Humiduct principle can supply conditioned air in any form—hot, cold, humid, dry, cleaned—or in any combination—automatically controlled.

Bahnson Engineers, experienced in textiles, are available for servicing post war planning—or priority installations.

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CONSULTANTS ON TEXTILE MANUFACTURING AND DEVELOPING
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NOVELTY-YARNS
For
WEAVERS-KNITTERS
MONTGOMERY
WINDSOR LOCKS, CONN.
Designers and Spinners of Novelty Yarns

NEWS ABOUT MEN

Whitman Co., New York, and now attached to the Office of the Quartermaster General, Washington, has been promoted from captain to major.

Charles A. Janss, Jr., lately with J. P. Stevens & Co. and now attached to the Office of the Quartermaster General, Washington, has been promoted from first lieutenant to captain.

John P. Baum, who before entering the Army was assistant manager of the Pepperell Mfg. Co. at Opelika, Ala., has been promoted to colonel from lieutenant colonel. He is chief of the Clothing Division in the Office of the Quartermaster General.

Helen G. Fontaine, formerly secretary to Gordon Cole, advertising manager of Cannon Mills, New York, has been promoted to a captain in the WAACS.

Fred Bullwinkel and **Robert M. Roth** of Iselin-Jefferson Co., New York, have joined the Army, the former going to an officers' training school and the latter to join the Signal Corps.

Benjamin L. Weissfeld, general manager of Shirley Fabrics Corp., New York, is about to join the Army.

David G. Halstead, formerly with the rayon division of J. P. Stevens & Co. and son of Paul B. Halstead, secretary-treasurer of the Cotton-Textile Institute, has been promoted from second to first lieutenant in the Army. He is stationed at Camp White, Ore.

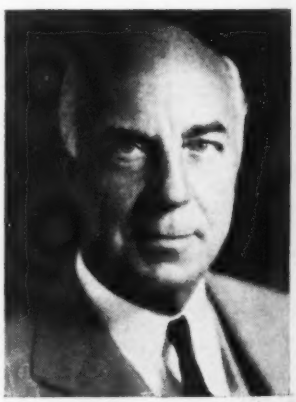
Vincent C. Rethman, lieutenant, U. S. A., former chemical engineer of National Starch Products' New York Service Department, has been awarded the Distinguished Flying Cross and the Air Medal with three oak clusters for his achievements against the Axis in the North Africa theater of operations.

C. Colburn Hardy, president of Charles A. Hardy & Co., East Orange, N. J., sales representative of Truche Leather Co., Peabody, Mass., has been commissioned lieutenant (j. g.) in U. S. Naval Reserve. His business duties will be carried on by his wife, **Mrs. Ruth E. Hardy.**

H. Kendal Dick, formerly with Celanese Corp. of America, Narrows, Va., was commissioned a second lieutenant in the Army Air Forces after a course in meteorology at New York University. Lieut. Dick graduated from Lowell Textile Institute in 1939.

Obituary

Frederick Kershaw, 58, president of Proctor & Schwartz, Inc., Philadelphia, builders of industrial drying and textile machinery which recently converted entirely to war work, died at his home last month. He had been associated with Proctor & Schwartz since 1898. He left the firm in 1907 to attend college and was called back to the firm to fill an important position before he graduated.



FREDERICK KERSHAW

James D. I. Husband, 63, marketing manager and a director of the Mohawk Carpet Mills, Amsterdam, N. Y., died recently. He was a native of Scotland and came to this country in 1897. He was with W. & J. Sloane for 27 years and with Mohawk for 17 years.

Nicholas E. Devereux, Jr., 56, secretary and director of the Oneida Knitting Mills, Utica, N. Y., died May 8 at Fort Du Pont, Delaware. At the time he was serving in the Coast Artillery with rank of lieutenant colonel.

George Willingmyre, 61, associated with the raw wool business for more than 40 years, died at his residence in Riverton, N. J., on Saturday, May 8. For the last 10 years he had been Federal Wool Administrator in the Customs Division of the Treasury Department. Previous to that he had been in charge of the

New Modinal DN*
"Right in the shade" for vat dyed cottons

MODINAL DN does "front line" duty for military and civilian production of vat dyed cotton piece goods and yarns.

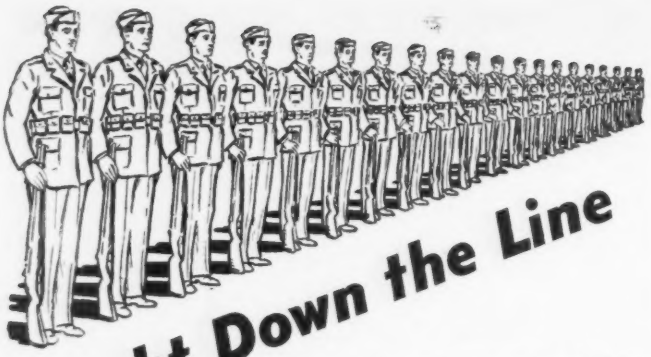
In addition to full shade development, light-fastness is often improved, particularly in the military khakis and olives. Other advantages are:

- ▶ **Scum from chrome precipitate is avoided**
- ▶ **Soap accumulation on Sanforizer blanket is cut to a minimum**
- ▶ **You do not have to rinse out Modinal DN completely because no odor or yellowing develops to mar results**
- ▶ **Often reduces costs**

Get help from our experienced men on technical production problems. Gardinol Corp., General Offices, Wilmington, Delaware. Sales Agents: Procter & Gamble, Cincinnati, Ohio. E. I. du Pont de Nemours & Company (Inc.), Wilmington, Delaware.

* **"MODINAL"** *is the trade mark used by the Gardinol Corporation to designate a group of its fatty alcohol sulfates.*

MODINAL DN *Fatty Alcohol Sulfates*



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If you have to meet Army Quartermaster Department specifications your fabrics will show a big improvement right down the line if you use

DRUMMOND SOAP

It's a high-body product of low alkali content . . . No filler of any kind . . . A high binding quality that results in minimum flocking . . . Saves on steam and water because it rinses easily and completely . . Better fulling and scouring . . . Leaves fabric perfectly clean with softest feel, better hand brighter colors and whiter whites . . Want to try it? Just write us today for a free working sample and test Drummond Soap on your own goods.

If you can't shoot Japs shoot the works — BUY MORE BONDS

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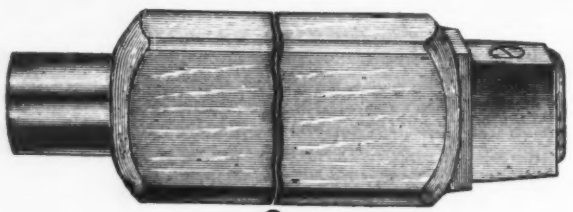

C

DYE STICKS

Since 1900 we have made high quality true-form oven-seasoned dye sticks for all standard machines. We can fill your needs today to meet any requirement. Write

FRANK BAILEY **Cedar Brook, N. J.**

***Simplified* DESIGN**
***Flexible* POWER**
***Better* EVAPORATION**
***More sensitive* CONTROL**

SOUTHWORTH HUMIDIFIER

Experienced textile men who know the merits of previous models of Southworth Humidifiers have found improvements in Model D that make it even more reliable and efficient.
Extreme sensitivity of control, and an "airplane propeller" type fan for greater evaporation, are two outstanding features.

NOTE

This advertisement is to remind you to include Southworth Humidifiers in your after-the-war plans. Frankly, we are 100% on war work and cannot make humidifiers at the present time.

THE SOUTHWORTH MACHINE CO.
PORTLAND MAINE

NEWS ABOUT MEN

Wool Division of the Department of Agriculture and played an important part in the development of the present wool standards.

Walter Dickinson, 75, who retired in 1938 as senior member of Frederick Almy & Co., New York, died at Great Barrington, Mass., May 6.

William H. Hund, 52, of Rose & Hund, sales agents for Cleveland Worsted Mills women's wear department, died May 6. He had spent his entire career in the woolen business.

William Gunning, Sr., 76, Easton, Pa., retired silk manufacturer, died May 2. A native of Glasgow, Scotland, he founded the Stewart Silk Co. Easton, Pa., and formerly was vice-president and general manager of the R. & H. Simon Silk Co.

Thomas W. Martin, 70, president of Berkeley Woolen Mills, Martinsburg, W. Va., bank president and hotel operator, died in a hospital May 11.

Maj. Elsie M. West, 54, second in command of the Massachusetts Woman's Defense Corps., and since 1932 head of William R. West Textile Co., New Bedford, Mass., operators of Wemsutta Mills, died at her home in New Bedford on May 12.

Isadore Wallace. 80, president of the Statesville, N. C. Cotton Mills, and president of the Crescent Hosiery Mills, died May 10.

Jacob Kianal, 83, of Philadelphia, owner of Unique Knitting Co., Acworth, Ga., died in Philadelphia May 5. His son, Fred Kianal is manager partner of the company.

James H. Wagner, 82, president of Crown Knitting Mills, Mohrsville, Pa., died April 26. He organized the Mohrsville company in 1892.

F. D. Moore, Sr., 66, since 1925 sole selling agent for Jefferson Woolen Mills, Knoxville, Tenn., died at Forest Hills, N. Y., May 12.

Henry Kohler, president of Arabol Mfg. Co., Brooklyn, died May 17.

T. J. Digby, Sr., 81, who retired in 1927 after serving as superintendent of Oakland Cotton Mills in Newberry, S. C., for 16 years, died at Spartanburg, S. C., recently.

John L. Masterson, formerly with Galey & Lord, New York, and lately serving as lieutenant in the U. S. Naval Air Service base at Miami, Fla., has been reported missing since an off-shore flight on April 24. A memorial service was held at the air station base on Sunday, May 26.

ELROY CURTIS

Elroy Curtis, 64, chairman of the board of Southeastern Cottons, Inc., New York, died at his home in Brookfield, Conn., May 25. He was active in cotton goods for 40 years, having been with Bliss, Fabyan & Co., Fleitman & Co., Seaboard Mills and Union Buffalo Mills Co. He joined Southeastern as vice-president in 1933. He had served as chairman of the Joint Council for the Worth St. Rules Committee, and was a member of the council for many years.

Frank D. Levering, president Eavenson & Levering Co., Camden, N. J., died May 29.

Q. R. Nolan, 54, chief engineer for Bibb Mfg. Co., Macon, Ga., died May 25.

Frank W. Boehmen, 51, president of B.Z.B. Knitting Co., Rockford, Ill., and of Rockford Mitten & Hosiery Co., died May 23.

Parker Corning, 69, chairman of board of Albany (N. Y.) Felt Co., died last month.

Walter Saenger, 59, vice-president, Geigy Co., New York, died recently. He joined the company in 1911.

A. J. McMinn, 46, superintendent of Gossett Mill, Williamstown, S. C., died recently.

George H. Bridge, 70, vice-president and southern representative of William R. Noone & Co., died at his home in Longwood, Fla., recently.

Howard E. Shimer, vice-president and general manager of Nazareth (Pa.) Waist Co. and a trustee of Muhlenberg College, died May 15.

Clarence B. Thomason, 65, for 30 years traveling representative of Ashworth Bros., died at his home in Charlotte, N. C., recently.

Looking Ahead

to the Post-War Period!

Right now, like most other companies, we are having to "mark time" in certain directions.

But our Textile Chemists are not standing still! With an eye to the future needs of the textile industry, they are developing a revolutionary new group of starch products for

WARP SIZING
PRINTING
FINISHING

In the meantime, we are bending our every effort toward bringing the war to a speedy and successful end . . . and looking toward the day when these outstanding new developments can be presented to you.

NATIONAL STARCH PRODUCTS Inc.

820 GREENWICH STREET, NEW YORK

FOR
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Corn Products
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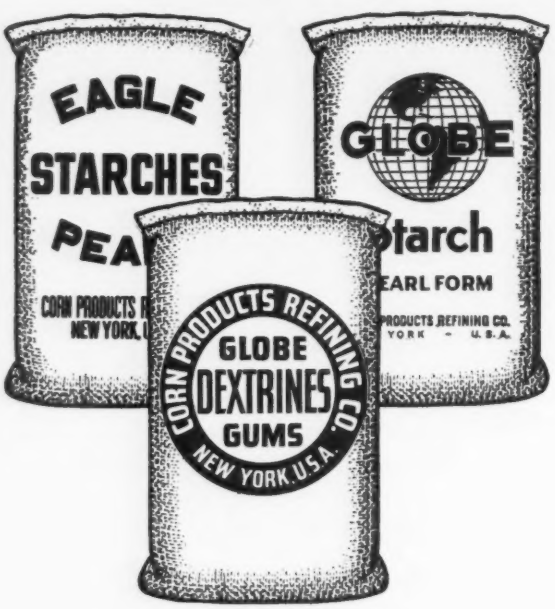
Starches



The uniformity, cleanliness and consistent high quality of Corn Products starches and gums are well-known to leading textile manufacturers. The technicians of Corn Products are always glad to help the manufacturer with Warp Sizing, finishing or other textile problems.

CORN PRODUCTS SALES COMPANY
17 Battery Place, New York, N. Y.

Textile Offices:

Greenville, S. C. Greensboro, N. C. Atlanta, Ga.
Spartanburg, S. C. Birmingham, Ala. Boston, Mass.

TEXTILE MILL NEWS

Cotton Mill News

Abbeville (S.C.) Mills Corp., recently chartered with capital of $100,000, has taken over local mills and property of Abbeville Mills, and will continue operations as heretofore. Plans are under way for an expansion and modernization program at plant, to be carried out at earliest consistent time, providing for large increased capacity. Cost is reported close to $1,000,000. F. G. Kingsley is president of new company; R. Milliken, vice-president; R. Collet, secretary; and A. B. Sibley, treasurer.

Clark Thread Co. of Georgia has bought the vacant plant at Pelham, Ga., formerly operated by Consolidated Textile Corp. Operations will begin as soon as machinery can be installed.

Esmond Virginia, Inc., a Delaware corporation, now domesticated in Virginia, and the American Blanket Co., another Delaware corporation, also domesticated, have been merged under the name of the American Blanket Co. The merged concern also has increased its maximum authorized capital stock. Esmond Mills plans to open a branch at Bluefield, W. Va.

Native Laces & Textiles, Inc., Hightstown, N. J., has bought the equipment of the Sherwood Lace Mfg. Co., Paterson, N. J., and will remove same to the Hightstown location for expansion.

Nelson Cotton Mill Co., Lenoir, N. C.—A controlling interest in this company has been secured by R. S. Dickson & Co., Charlotte, N. C., investment bankers, for a reported consideration of $400,000. Purchasing company will be active in the management in the future. The property has been leased to American Yarn & Processing Co., Mount Holly, N. C. Latter company also is controlled by Dickson company. The two mills of Nelson company have combined installation of about 13,200 spindles on 20s to 40s carded and combed yarns.

Pacific Mills first quarter net is reported at $350,465 against $668,500 a year ago.

Postex Cotton Mills, Post, Tex., will run out its stock and close down because, it is said, present price ceilings involve constant loss on its sheet and pillow-case production.

Russell Mfg. Co., Middletown, Conn., is completing a one-story addition for storage service, for which general contract recently was let to Denis O'Brien & Sons, Inc., Westfield, Conn.

Southern Webbing Mills, Inc., Greensboro, N. C., have been converted for production of webbing materials for war service.

Tallapoosa, Ga. — A new yarn mill is scheduled to begin operation at an early date at Tallapoosa, Ga., in a building formerly housing Tallapoosa Cotton Mills.

Trenton Cotton Mills, Gastonia, N. C., have recently completed installation of six Saco-Lowell combers, two lapwinders, and 16 heads of controlled-draft drawing. It was pointed out that this new equipment, with the regular drawing converted to breaker drawing, form a compact unit for processing combed sliver. Company has also installed two long-draft slubbers. It is estimated that 40% increase in production is obtained.

Wauregan Quinebaug Mills, Inc., Wauregan, Conn., has reincorporated as the Wauregan Mills, Inc. Assets have been transferred to the new company with a new capital set up. The managing personnel and business policy will remain the same, with J. Arthur Atwood, president.

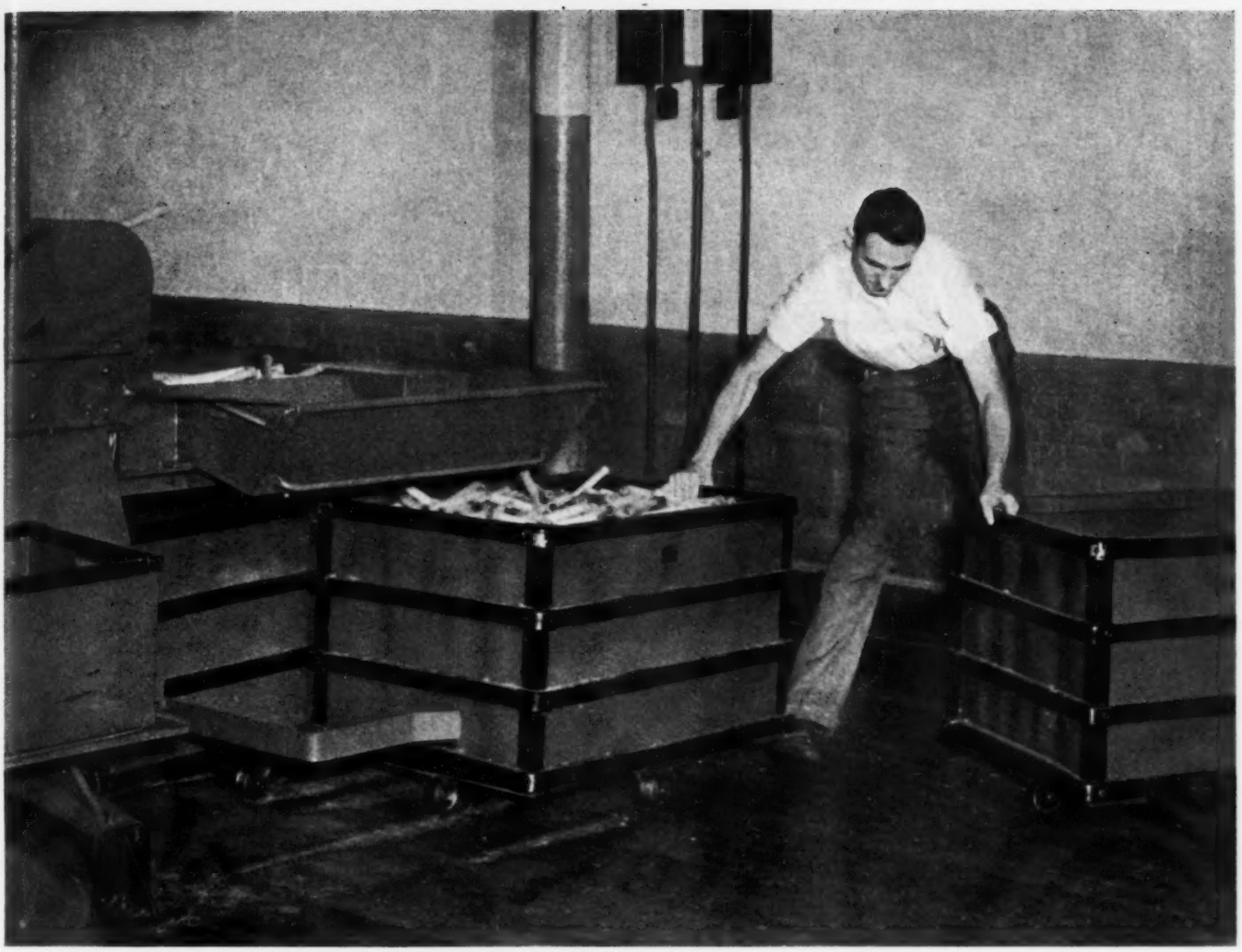
Wiscassett Mills, Albemarle, N. C., were damaged to the extent of several thousand dollars by fire in the picker room recently.

Whitener Spinning Mills, Lincolnton, N. C., has taken over the Smith Yarn Mill. H. R. Whitener, superintendent and vice-president of Rudisill Spinning Mills, is president and treasurer of the new company, and W. Henkel Smith is superintendent.

Wool Mill News

Airedale Worsted Mills Inc., Woonsocket, R. I., recently installed 60 latest-type Draper automatic looms. New rest rooms with showers have been added.

American Woolen Co., Lawrence, Mass., has been making interior improvements in its Ayer Mills, including installation of new elevators, for which contract was awarded to Otis Elevator Co., with pent house for operating equipment, and other work.



Time-Savers for Bobbin-Handling

EACH Barber-Colman Automatic Spooler has a sorting table to which empty bobbins, tailings, and strips from the pockets are delivered automatically by a conveyor. This table is large enough so that the spooler girl can easily and quickly pick out the tailings and strips. It is at convenient working height so no stooping is necessary. Having picked out all bobbins that can be re-run, she opens a flap on the front of the table and the empties slide into a large bobbin truck set under the table. When this truck is full, it can be quickly pulled out and an empty one put in its place. The truck full of empty bobbins is sent to the spinning room. These may seem like small details to be talking about, but they are typical of many features of Barber-Colman Automatic Spoolers—features which add to convenience, saving of effort, saving of time, and increased production—features which make Barber-Colman equipment valuable for producing more and better war goods, faster.

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • TWISTER CREELS • MOISTURE CONTENT CONTROLS

BARBER-COLMAN COMPANY

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From single hair to 2,000 lbs.

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REPELLENTS • SOFTENERS
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BURK-SCHIER

BURKART-SCHIER CHEMICAL CO.
CHATTANOOGA, TENNESSEE

Bigelow-Sanford Carpet Co. Inc., for the first quarter of 1943 reports net loss of $65,337 after all charges, including depreciation. In the corresponding quarter of 1942 there was net profit of $467,676. Net sales for the 1943 quarter amounted to $8,668,806 compared with net sales of $13,402,865 in the comparable period last year, a decline of 35.3%.

Dominion Woolen & Worsteds, Ltd., Hespeler, Ont., will soon place award for one-story addition to local mill, to be used as a warehouse and shipping building, reported to cost close to $45,000, with equipment. T. Pringle & Son, Ltd., Toronto, Ont., are engineers.

Heywood Mills, Inc., are occupying the former Tilton Worsted Mills at Tilton, N. H. It was recently stated that the new enterprise would be run by Northfield Mills, Inc. Arthur S. Brown is president of the Heywood company, as well owner of the plant and machinery.

Norwood Woolen Mills, Bristol, Tenn., lately organized by C. J. Henkel, Jr., head of Rocky Creek Mills, Turnersburg, N. C., have leased the spinning department at local Bristol Knitting Mills, and have begun production of woolen and rayon yarns, operating about 2,000 mule spindles. Plant will be developed to a maximum of about 20,000 lbs. of yarns weekly.

Rayon & Silk Mill News

American Viscose Corp. reports net profit of $1,461,399 for the first quarter against $1,309,475 for similar period a year ago. Sales for the quarter at $25,143,363 were up 13% from year ago.

Belding Heminway Corticelli, Inc., reports net profit for first quarter of 1943 amounting to $151,139 compared with a net profit of $154,234 for corresponding period one year ago.

Burlington Mills Corp. reports net profit for six months ended April 3, 1943 of $1,864,258.

Centerdale Mills, North Providence, R. I., has been sold to Atlantic Chemical Co. for manufacture of textile chemicals for war purposes. A small textile weaving plant, run by Harold and Raymond White, will retain a part of the mill.

Columbus (N. C.) **Mills** lately incorporated have taken over the old Katterman & Mitchell weaving plant at Columbus. Incorporators are W. S. Green, M. R. McGowan, J. T. Arledge, all of Tryon, N. C.

Stamford (Conn) **Ribbon Mills, Inc.,** recently chartered with capital of $50,000, plan early operation of local mill for rayon ribbon production. New company is headed by William A. Kelly and Walter B. Lockwood, both of Darien, Conn.

Star Rayon Mills, Inc., 192 Anawan St., Fall River, Mass., recently organized with capital of $100,000, will operate a local rayon fabric mill. R. C. Wetmore is president; and Max Mayer, 38 Third St., Fall River, treasurer.

Tubize Chatillon Corp. reports net profit for first 1943 quarter of $315,870, against $408,634 for similar 1942 period.

Knitting Mill News

Aetna Knitting Co., has been organized and incorporated in Cleveland, O., with a capital of 250 shares no par common stock. John W. Wurstbron, Union Commerce Bldg., represents the new firm, principals of which are John H. Porter and J. Steinbrenner.

Davis Hosiery Co. Greensboro, N. C., has been chartered with authorized capital stock of $100,000 to buy, sell and deal in hosiery. The principals include J. L. Davis, J. L. Davis, Jr., and Thomas Turner, Jr., of Greensboro.

Full-Knit Hosiery Mills, Burlington, N. C., has opened a branch with 60 machines at Shelby, N. C.

Gotham Hosiery Co., Wharton, N. J.—Local mill of this company has recently been purchased by L. E. Carpenter & Co., Newark, N. J., manufacturers of coated and processed textile cloth, who are now occupying the property for a new plant.

P. H. Hanes Knitting Co., Winston-Salem, N. C., recently purchased the four-story brick building at corner of Seventh and Main streets, just north of its plant, the three upper floors of which it has had leased for some time for storage purposes.

Hanken Knitting Mills, 1273 Main St., Bridgeport, Conn., have been organized by William Hanken and associates, to operate a mill.

Louis and **Sam Lavitt,** owners of Knit-Sox Hosiery Mill, West Hickory, N. C., have purchased the finishing plant of P. J. Brown and their product, formerly disposed of in

Introducing COLACET*

Franklin's WATER REPELLENT

Especially developed for textiles, to give extra protection, greater beauty and serviceability to cotton, linen, natural silk, rayon, cellulose acetate and wool—in short to textile articles of all kinds, from aprons to uniforms.

Colacet, a concentrated wax emulsion, imparts an unusually high degree of water repellency to any fabric on which it is used, **but it does more.** It makes it spot resistant, stain and perspiration resistant, too. It adds a rich-looking sheen to the surface. It enables the fabric to more effectively resist wrinkling and wilting.

Colacet is colorless, odorless. Will not change the texture of the finished fabric. Will not harm either the skin or the most delicate material. Write today for complete technical information.

*Colacet conforms to Quartermaster Corps Tentative Specifications P.Q.D. No. 115b dated November 19, 1942

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Makers of Rubber Gloss . . . PHILADELPHIA

"Aye, 'Tis Timely Thrift"

CUTS REQUIREMENTS IN HALF!..

CRYSTAL CLEANSER
Dishwashing Compound

- - serves today's need for making less do more . . . in results as well as in conserving materials. Its fast, safe cleansing action is so thorough, occasional soaking of dishes in strong solution is unnecessary. Yet *Crystal Cleanser* requires but half as much, in most cases, as other compounds. Makes glassware glisten. Keeps dishwashing machines free from crustiness. For hand or machine use.

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INDUSTRIAL ENGINEERS
Specializing in
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TEXTILE WORLD
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gray, will be sold as a finished product. The new finishing plant will have a capacity of 2,000 doz. prs. daily.

Lynchburg Hosiery Mills will construct a new building adjoining its Fort avenue plant in connection with the manufacture of bomb fragmentation parachutes. The one-story brick structure will be used at present for storage.

Mount Airy (N. C.) Knitting Mill has recently installed some additional machinery acquired from Muskegon, Mich., plant of Amazon Knitting Co.

Ripon (Wis.) Knitting Works have plans for interior alterations and improvements in three-story mill, and will carry out work with day labor at early date. No estimate of cost announced. Auler, Jensen & Brown, Oshkosh, Wis., are architects.

Processing Plant News

Balloon Dye Works, San Diego, Calif., is the firm name under which Morris Breitbard, Edward A. Breitbard, William Breitbard and Sylvia Breitbard have published an intention to conduct business at 101 Sixteenth street.

Cambridge Piece Dyeing Corp., Paterson, N. J., has moved from 155 McBride Ave. to larger quarters on 51st Ave.

Cliffside Dyeing Corp., Paterson, N. J., has bought the Bamford Mill in which it has leased space since its formation about three years ago.

Farwell Bleachery, Lawrence, Mass., previously acquired by the Ziskind interests, has been taken over by the Kenyon Finishing Co., newly formed. The new owners, headed by Frederick Kenyon of Westerly, R. I., as president, will operate and expand the business without change in the operating management. Raymond Curtis of Warwick, R. I., is treasurer of the new company. Officers hold similar office with Kenyon (R. I.) Piece Dye Works.

Hand Printers, Inc., Baltimore, Md., **Aspinook Corp.,** Jewett City, Conn., and **Lawrence (Mass.) Print Works,** have been appointed finisher licensees under the American Viscose Corp.'s "Crown" Tested Plan, as qualified to dye and finish rayon fabrics in accordance with the "Crown" Tested minimum requirements.

Kaback Finishing Co., Inc., New York, N. Y., care of Zane & Lippner, 254 West 57th St., New York, has been organized with capital of 200 shares of stock, no par value, to operate a local textile dyeing, printing and finishing mill.

Delta Piece Dye Works, Inc., Paterson, N. J., care of H. Dick Cohen, Passaic, N. J., attorney and representative, recently chartered with capital of 100 shares of stock, no par value, has leased space in building at East 15th and Branch Sts., for a dyeing, printing and finishing mill. Herman Becker is president.

Phoenix Dye Works, 1963 North Southport Ave., Chicago, Ill., have work under way on two-story top addition to mill, approximately 28 x 32 ft., and will use for expansion.

Poughkeepsie (N. Y.) Finishing Corp., care of M. Glen Folger, 236 Main St., Poughkeepsie, attorney and representative, recently chartered with capital of $50,000, plans operation of a local dyeing, printing and finishing mill.

Shields Hosiery Dye & Finishing Co., Shelby, N. C., recently has begun operation of a new local mill in one-story building at Arey and Trade Sts. Company is headed by J. F. Shields, Hickory, N. C., and was transferred from that place to new location.

United Piece Dye Works report net profit of $292,819 for 1942 against net loss of $223,040 for 1941.

Victoria Prints, Inc., Greenville, S. C., has been chartered with authorized capitalization of $25,000 to manufacture textiles. Officers listed were H. R. Wright, president; J. O. Hunt, vice-president and treasurer; F. K. Hayes, secretary.

Miscellaneous Mill News

Asbestos Mfg. Co., Huntington, Ind., plans expansion in plant for production for Government, including new building and installation of equipment. Cost estimated about $100,000, with financing provided by Defense Plant Corp., Washington, D. C.

Commodity Credit Corp., Washington, D. C., Federal agency, has awarded general contract to Hutter Construction Co., Fond du Lac, Wis., for construction of three new hemp-processing mills at Cuba City, Darien and Union Grove, Wis.

Flax Fiber Industries, 642 South Cochran St., Los Angeles, Calif., have filed notice of organization, to operate a local processing mill. Company is headed by M. Kline.

In Rain or Snow or Muggy Heat

Wherever they are — wherever they may go — our fighting men have the constant protection of fabrics finished to meet the needs of global war. With experience born of peacetime service but with a resourcefulness geared to the needs of war, Arkansas takes pride in producing at top speed for textile processing and finishing plants whose fabrics must meet rigid government specifications.

FUNGICIDE G

For mildew-proofing all types of military fabrics — insect netting, jungle canopies, tentage, sleeping bags, webbing, camouflage netting, etc. Meets government specifications. Non-toxic, non-irritating.

AQUAROL*

For producing a water-repellent finish on uniform cloths, overcoatings and other military fabrics — used in a single bath treatment with Fungicide G to impart mildew resistance and water repellency.

*Reg. U. S. Pat. Off.

Newark, New Jersey

Arkansas Co. Inc.

The Joseph Noone's Sons Company

A. Erland Goyette, Owner

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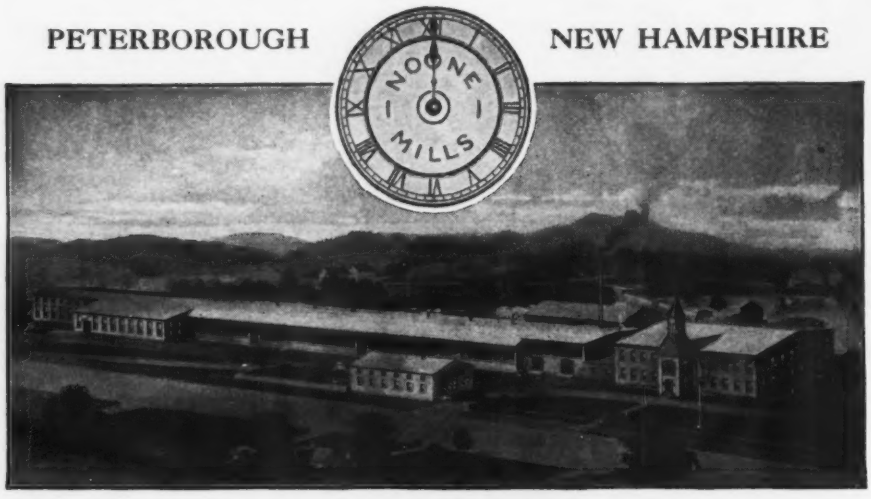

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Noone's Standard Roller Cloths

Insist on Noone's Standard Roller Cloths for your Spinning Rolls. Noone's have been Standard since 1831.

Results and costs are what count most.

Use Noone's Roller Cloth and be assured of a Strong Round uniform yarn, the best obtainable. Eventual cost, less than any other covering.

Good spinning can always be obtained when Noone's Roller Cloth is used, as it is the properly built Cloth,—has the correct cushion and consistency, and uniform gauge.

Noone's is best by test.

Many materials have been used for Spinning Roll Covering in years past, but have eventually been discarded in favor of the dependable Woolen Roller Cloth and Leather.

Do not be misled, put your faith in the good Old American Products: Noone's Roller Cloth and Leather. If in doubt, allow us to demonstrate the superiority of our Roller Cloth and a leather cot.

Use Noone's Roller Cloths, Noone's Slasher Cloths, Noone's Clearer Cloths.

Noone's are the Pioneers in Mechanical Cloth Manufacturing in America.

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ARNOLD T. MALONE, Manager

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FOR PIGMENT PRINTING
and PIGMENT DYEING
in WATER SOLUTION..

SHO-PAL

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WASH FAST when the printed or dyed cloth is dried . . . eliminates curing.

DRY PRODUCT . . . easy to handle . . . saves shipping and storage space.

NO SOLVENT . . . does not damage rubber blankets.

ANY OTHER TYPES of COLOR can be used because the paste is made up with water.

WIDE PIGMENT CHOICE . . . you can select your pigment colors from several sources of supply.

NO STRATEGIC MATERIAL or homogenizing equipment required.

High Quality Results at Low Cost.

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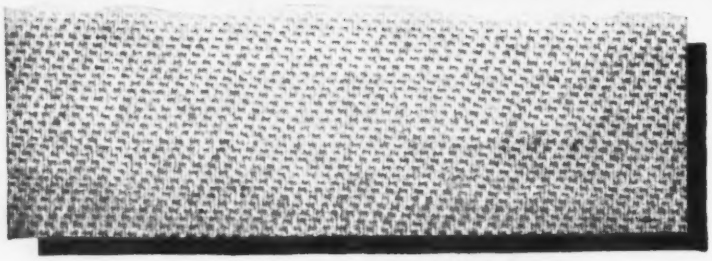

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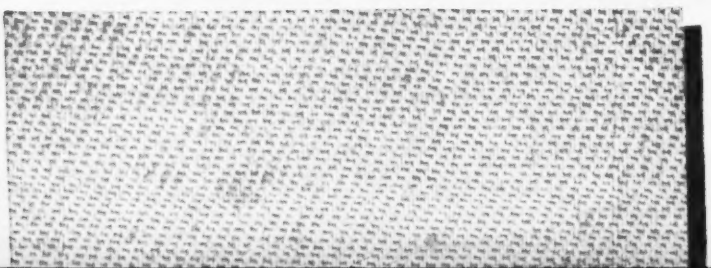
Staley manufactures a complete line of unmodified and modified corn starches.

For any textile requirement ...the ANSWER IS STALEY'S



A. E. STALEY MANUFACTURING COMPANY
DECATUR ILLINOIS

ATLANTA, NEW YORK CITY, SPARTANBURG, CHICAGO, BOSTON

Notice how this workman is squinting . . . leaning over in an effort to see Glare in his eyes is the chief cause. No employee can do his best work under such a handicap.

Same workman . . . same machine. But with improved *seeing* conditions he is relaxed and comfortable. This means speedier production, less spoilage, fewer accidents.

These pictures show the meaning of SIGHT FOR VICTORY

Today in thousands of war plants careful attention to seeing conditions is helping to speed production, reduce spoilage, prevent accidents. Many little things can be done to correct lighting faults and make it easier to see—especially on the night shift.

In order that all of the fighting war plants of America may get the utmost production benefits from their present lighting, a nation-wide "Sight for Victory" check-up has been planned for the month of June. General Electric is glad to cooperate with other members of the Lighting Industry in this effort to help production men check their lighting.

Get Your Copy of New Book
SIGHT FOR VICTORY

Some day soon a lighting man plans to bring you a new manual entitled "SIGHT FOR VICTORY", published by the National Better Light-Better Sight Bureau. It tells clearly and simply how to recognize and correct lighting bottlenecks in your plant with the minimum use of critical materials or man-power.

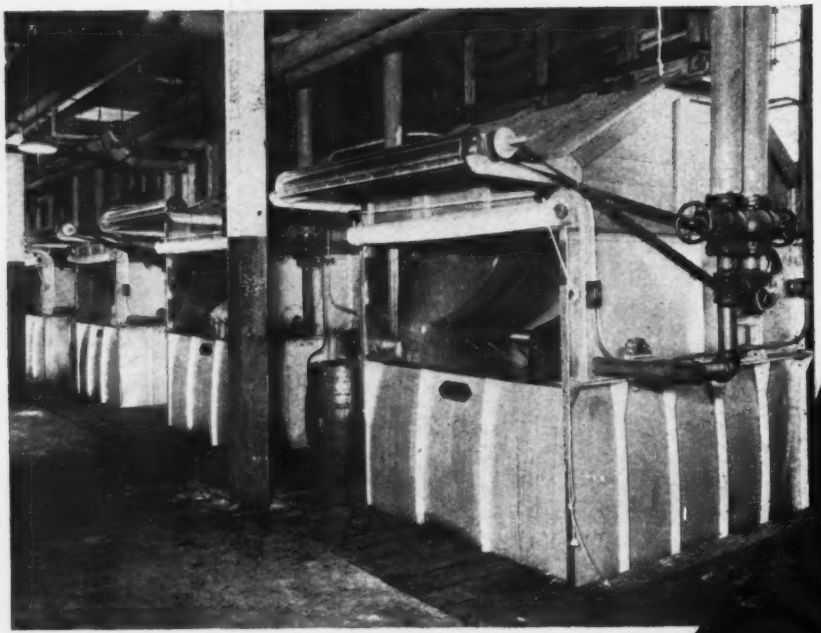
The manual includes a useful Light-Sight check sheet for your convenience. If that lighting man fails to reach you, you can still get your copy by phoning your nearest G-E lamp office. Or ask your G-E lamp supplier or local Electric Service Company. General Electric Company, Nela Park, Cleveland, Ohio.

G-E MAZDA LAMPS

GENERAL ELECTRIC

Tune in the G-E MAZDA lamp radio program Sundays 10 p. m. (Eastern War Time) N. B. C.

THEY'LL BE *GOING STRONG*



WHEN THE SHOOTING ENDS!

The superintendent of this mill isn't worried about his ARMCO Stainless Steel dyeing equipment outlasting the war. He knows it will—and for good reason.

Daily inspection of all machines is standard practice in the plant. At least once a week all surface deposits are removed, and the interiors of dye vats get a thorough rinse. Then the stainless steel machines are exposed to the air overnight. (This causes the formation of a protective film on stainless. This microscopic film is self-healing in the presence of oxygen.)

Simple precautions like these will insure unfailing production and long, trouble-free service life for *your* stainless equipment too. This is doubly important during wartime—to you and to the nation.

Meanwhile, when you make plans for your new post-war equipment, keep ARMCO Stainless Steel in mind. Today it is proving its unique qualities in Uncle Sam's fighting equipment. Out of these war experiences will come improved rustless metals that will help you continue to cut costs and boost production. The American Rolling Mill Company, 1561 Curtis St., Middletown, Ohio.

MADE OF ★ ARMCO ★ STAINLESS STEEL

THE AMERICAN ROLLING MILL COMPANY

DU PONT "Three Dimensional Seeing"

The NEW and PROVED way to Boost Production...with *PAINT!*

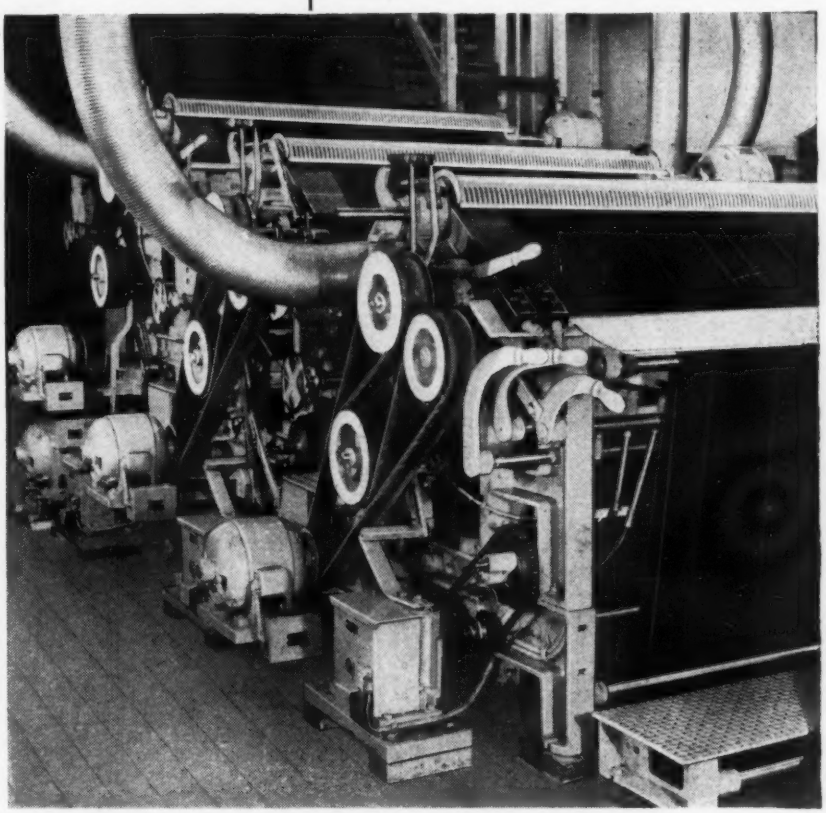
BFFORE: Most textiie machinery is painted in dark, dingy colors that absorb light instead of reflecting it. This unintentional camouflage slows down production...breeds eyestrain . . . causes mistakes and accidents.

From all over the country have come reports about Du Pont "Three Dimensional Seeing" . . . reports that show substantial increases in production and marked reductions in accidents.

WHAT IS "THREE DIMENSIONAL SEEING"? It's a new way of using *paint* to give textile workers keener, faster, more accurate vision.

HOW? Simply by repainting dark, dingy machines in scientifically selected colors that *reflect* light . . . colors that contrast with the yarns, threads and fabrics, and which also contrast with dangerous moving parts of the machine. Walls, ceilings and floors are painted in colors carefully selected to improve the efficiency of existing lighting equipment.

Colors and color combinations are scientifically selected by Du Pont paint technicians to fit the individual requirements of each plant. The type of machines, the color and types of fabrics, the plant lighting system . . . all are factors that help determine the paints to be used. For further information, fill in the coupon today.



AFTER: Notice the visual contrast when this machine is repainted with Du Pont "Horizon Gray". . . with danger areas spotlighted in bright contrasting colors. Operators see better, work faster. Accidents are reduced.

DU PONT

SEE U. S. PAT. OFF

THIS COUPON will bring you further information about the production-speeding development, "Three Dimensional Seeing." Fill it in now...check the items that interest you... drop it in your "Outgoing" box. E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Dept. TW 63, Wilmington, Delaware.

I'D LIKE TO SEE:

☐ *Your latest booklet, "The Visual Way to Victory through Three Dimensional Seeing."*

☐ *The new film, "Salvaging Waste Light for Victory." Tell me how I may arrange for a showing.*

☐ *How "Three Dimensional Seeing" can be applied to my problem. Send me a Du Pont Service Engineer.*

NAME_____

TITLE_____

COMPANY _____

ADDRESS_____

CITY_____ STATE_____

"Look it up first"

in the TEXTILE WORLD YEARBOOK and CATALOG

In the Catalog Sections . . .

WHENEVER you need details on equipment or supplies . . . whenever you need information on companies or products . . . "look it up first" in your 1942 Textile World Yearbook and Catalog.

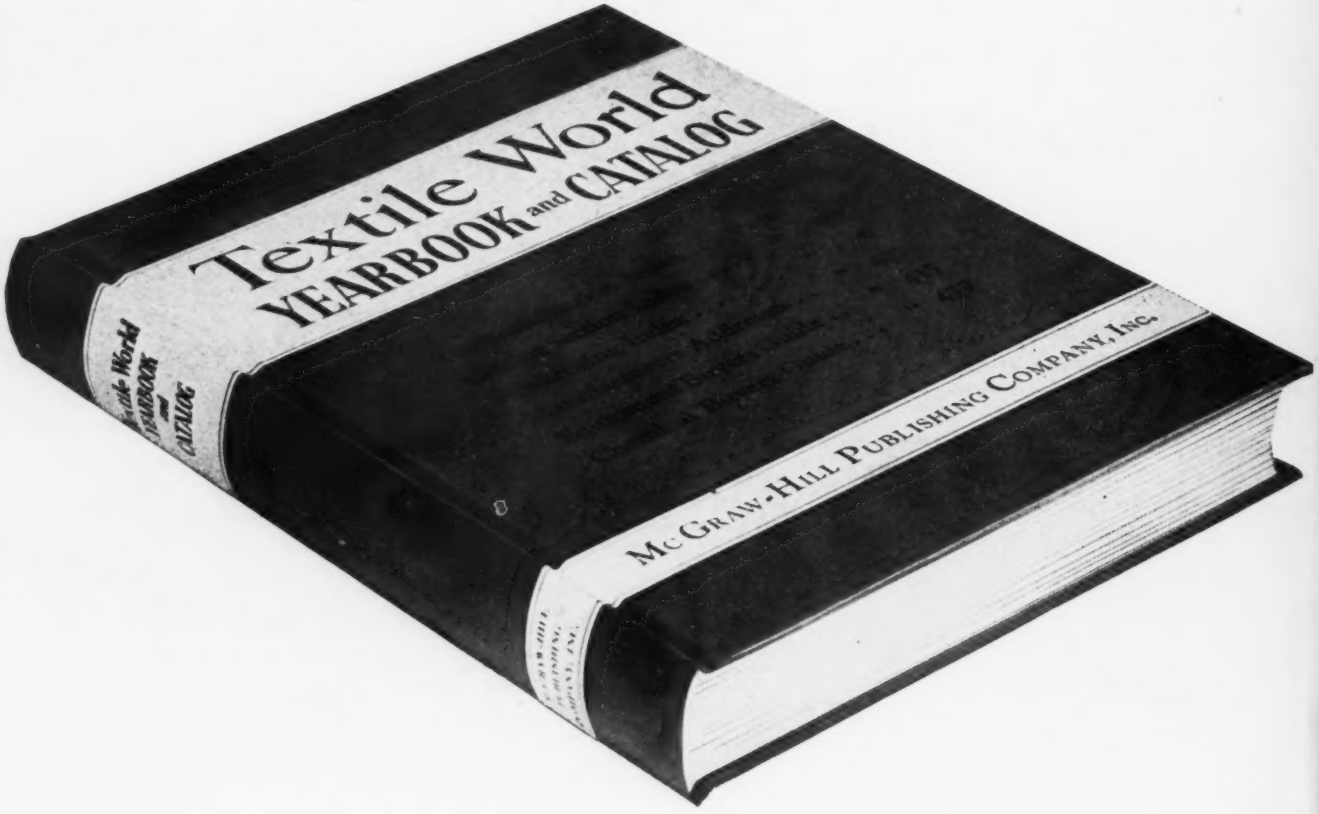
In this one *complete* volume you will find a classified directory of manufacturers of material, machinery and supplies used in textile mills—an equipment buyers guide, a chemical buyers guide—and over 200 pages of manufacturers' catalogs giving detailed information about their products.

Whatever you need "look it up first" in the Textile World Yearbook and Catalog.

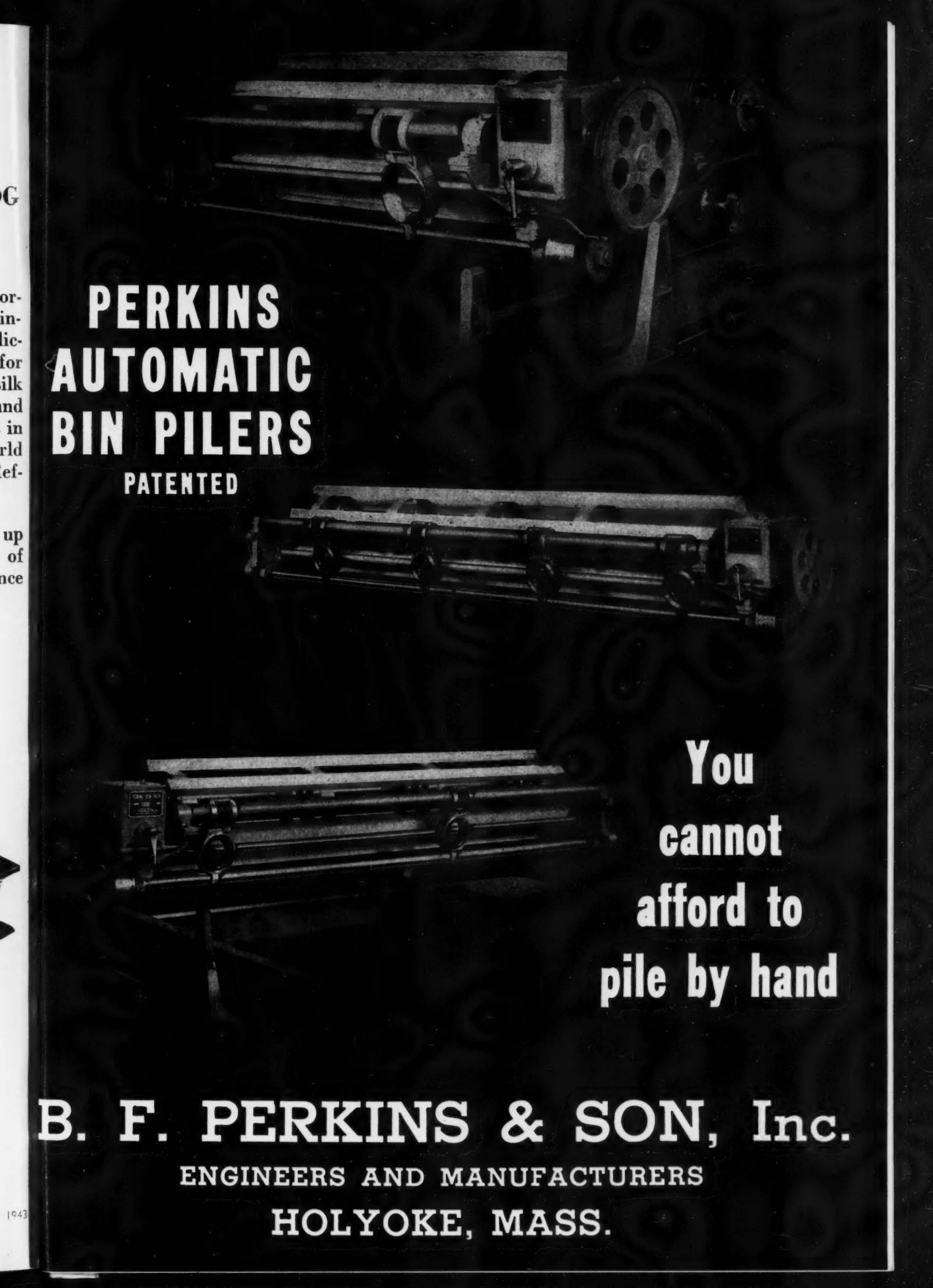
In the Data Sections . . .

WHENEVER you need technical information about mill operation or maintenance, whether it be *general* data applicable to all textile mills, or *specific* data for the guidance of cotton men; wool men; silk and rayon men; or dyeing, bleaching and finishing men you will find the answers in the 100 pages of your 1942 Textile World Yearbook and Catalog, devoted to Mill Reference Data.

Whatever your problem, "look it up first" in this authoritative compilation of useful data presented for your convenience by the Editors of Textile World.



"The Yearbook with the Orange Band"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AUTOMATIC
BIN PILERS
PATENTED
You
cannot
afford to
pile by hand
B. F. PERKINS & SON, Inc.
ENGINEERS AND MANUFACTURERS
HOLYOKE, MASS.

LOOK TO LEWELLEN

-the pioneer in speed-control engineering

• It has been speed control—lock, stock and barrel—with Lewellen for more than 45 years. The pinacle of efficiency in the solution of each speed-control problem has always been our goal. It remains unchanged by war.

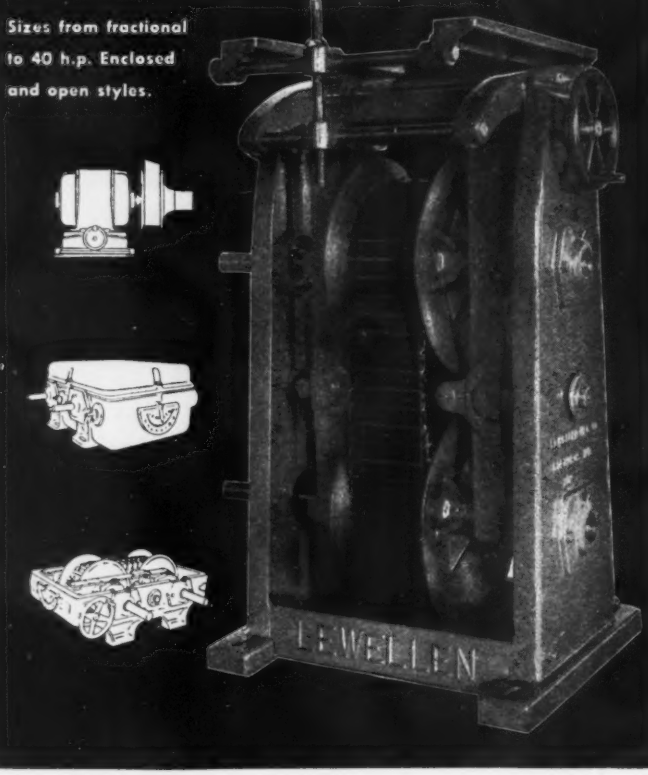
May we apply this experience and this ideal as we tackle your speed-control problem?

Actually, fixed-speed machines can do so much, and no more. A Lewellen Variable-Speed Transmission or Variable-Speed Motor Pulley makes a machine flexible and, thereby increases production and assures product uniformity—IT BECOMES AN INTEGRAL PART OF ANY PRODUCTION MACHINE. Often Lewellen Controlling Devices perform modern production miracles.

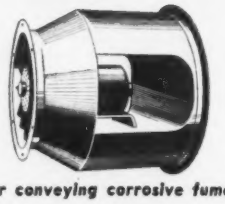
We want to help you now when such help may be of vital importance. That's why we say, "LOOK TO LEWELLEN." Wire, phone or write TODAY!

LEWELLEN MANUFACTURING CO.
COLUMBUS, INDIANA

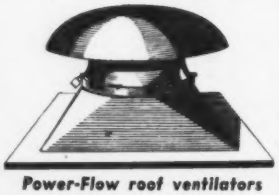
Sizes from fractional to 40 h.p. Enclosed and open styles.



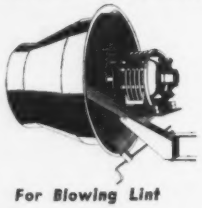
Make a place for the DeBothezat VENTILATING MAN right from the start



For conveying corrosive fumes



Power-Flow roof ventilators



For blowing Lint

For general ventilation

ARMY E NAVY

"To do a thing right, start right." So when you have a project that requires ventilation of any kind, don't hesitate, get a highly trained DeBothezat Ventilation Engineer to assist you in working out the details. His knowledge of ventilating problems may point the way to saving in time and money. He is backed up by a complete line of DeBothezat ventilating equipment which is designed around the original Axial-Flow fan. Axial-Flow fans offer the following advantages: Guaranteed air delivery; non-overloading power characteristic; savings in space, weight and power; efficient operation against resistance of duct systems. If your requirements call for specialized equipment, the DeBothezat Research Department will gladly assist in its development.

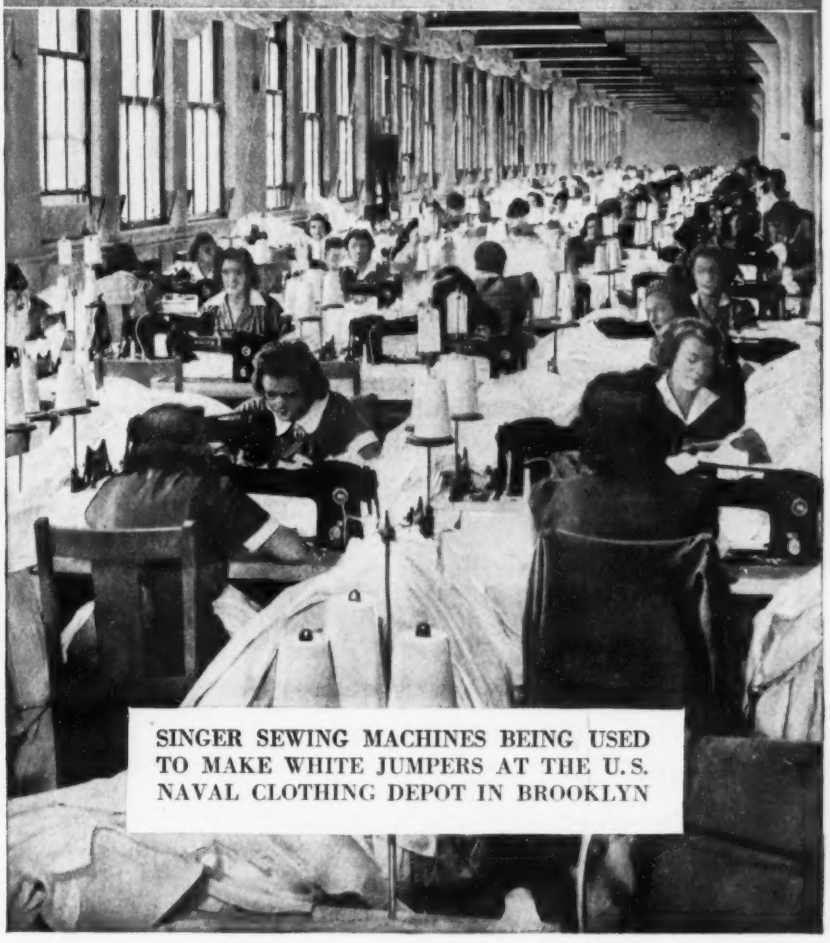
De Bothezat

VENTILATING EQUIPMENT

DIVISION OF AMERICAN MACHINE AND METALS, INC.,
EAST MOLINE, ILLINOIS

...IN AFRICA ...OR BROOKLYN...

BUSY TAILOR WORKS ON A UNIFORM SOMEWHERE ON THE AFRICAN DESERT
British Official Photo. Crown Copyright reserved



SINGER SEWING MACHINES BEING USED TO MAKE WHITE JUMPERS AT THE U.S. NAVAL CLOTHING DEPOT IN BROOKLYN

In the African desert, in Brooklyn, and many other parts of the world, Singer sewing machines are playing a vital part in clothing and equipping men for all branches of the armed forces. Singer sewing machines formerly available for making hundreds of different things for civilian use are now sewing parachutes, gas masks, uniforms, pants, gun covers, shoes, powder bags, liner lined helmets, and many, many other articles needed to bring speedy victory to US. And if, like many others, you are having trouble getting Singer sewing machines, remember that Uncle Sam is our first customer, and his needs must be satisfied first.

SINGER SEWING MACHINES

SINGER

SEWING MACHINE COMPANY
Manufacturing Trade Department
149 Broadway New York, N. Y.

Branches in all principal cities

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Duplan Throwing

From yarns for the sheerest hosiery to yarns for the sturdiest military and mechanical products.

★

Side by side with war problems, our four modern plants are throwing yarns for civilian requirements. The Duplan name stands for quality, large capacity, dependability.

THROWING OF

RAYON • ACETATE RAYON • NYLON

SILK • COTTON • WOOL

FOR KNITTING, WEAVING,

MILITARY AND INDUSTRIAL PURPOSES

★

Duplan has always had its feet on the ground . . . but as this war goes on much of our work is winding up in the skies. We are throwing miles of yarn for parachutes and other military requirements.

Innumerable new technical problems have been placed in our lap—and our staff has come up with the answers . . . which are helping our armed forces.

THE

Duplan

CORPORATION

512 Seventh Avenue, New York

Philadelphia, 18 West Chelten Avenue

Chattanooga, Provident Building

Charlotte, Johnston Building

Textile Dewatering in 194-?

WHILE the war has limited the number of Suprex Extractors for the textile mills . . it has NOT limited the number of applications for centrifugal force.

Instead, the demands of wartime industry have been a severe and constant challenge to the Tolhurst Research Staff. In meeting these demands, this group of chemists, physicists and engineers have gained valuable knowledge and experience that will be reflected in even finer extractors when we return to peacetime manufacturing.

In the meantime, take the best possible care of your present extracting equipment . . . and call in the Tolhurst service man if he is needed.

ARMY E NAVY

Tolhurst CENTRIFUGALS

DIVISION OF AMERICAN MACHINE AND METALS, INC.

EAST MOLINE, ILLINOIS

How to Keep Acids Working for Victory . . . . . No. 4

Helping America's process industries win the battle of materiel production is their acid handling equipment. It must stay in the production line—and Tellurium Lead is helping keep it in fighting trim.

* * *

Every plant man concerned with the maintenance of such chemical apparatus recognizes *heat* as Equipment Enemy No. 1. Aside from its effect on the physical properties of corrosion-resistant metals, heat accelerates corrosion. Solutions and gases easily controlled at room temperatures become increasingly destructive as the heat indicator rises.

In a number of plants* Tellurium Lead has made it possible for equipment to operate satisfactorily at temperatures which made short work of the lining and piping materials previously employed. For this reason it is generally recognized as the "high temperature lead."

Evidence of Tellurium Lead's ability to withstand corrosion at the higher heat levels is given by the results of the flash test reported at right.

Undoubtedly one factor contributing to its corrosion resistance at elevated temperatures is Tellurium Lead's stability of grain structure under prolonged heat exposure—see accompanying photomicrographs.

* * *

Tellurium Lead has also been found to perform well under conditions where repeated and abrupt temperature changes, with resulting expanding and contracting forces, subject equipment to recurring stresses. This is thought to be due, among other things, to Tellurium Lead's *work-hardening* characteristic. As this lead is worked, it is toughened—increased in tensile strength.

The work-hardening property of Tellurium Lead is also a safeguard wherever lead must be bent, stretched or hammered, as in elbows, flanges, coils, joints and turnover points.

* * *

Another frequent requirement of acid handling equipment is resistance to vibration. The resultant fatigue stresses, acting in combination with corrosion, are more disastrous than either factor alone. To meet this condition Tellurium Lead not only has the acid corrosion resistance for which lead is noted but also, under vibration tests, it exhibits a 60% greater endurance limit than lead without the tellurium addition.

* * *

Tellurium Lead of our manufacture is time-tested St. Joe chemical lead alloyed with a small quantity of tellurium. It is available in sheet or pipe form, or fabricated in coils for heating and cooling purposes.

For further information address the nearest Company branch listed below.

*TYPICAL CASE HISTORIES

One user of Tellurium Lead reported that eight months after installation, "the lining in our tub showed little if any corrosion due to the action of the 10 per cent boiling sulphuric acid to which it is exposed."

* * *

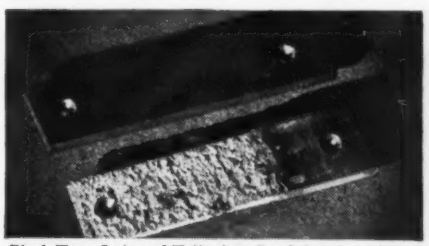
Another user — whose equipment is subjected to temperatures ranging up to 356° F. — says, "we find Tellurium Lead withstands chemical action to a much greater extent than the material used previously."

* * *

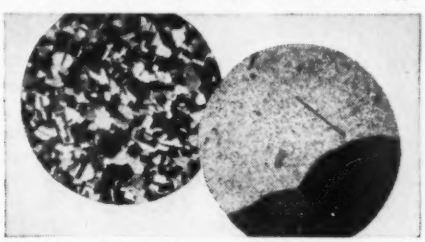
Another company tried a Tellurium Lead heating coil in a plating tank where the average coil life was ten weeks. The Tellurium Lead coil more than doubled this average — stood up for six months.

* * *

Still another company is using Tellurium Lead to line tanks handling phenolic compounds and sulphuric acid at temperatures ranging up to 376° F. Previous lining materials pitted badly after short service. Several of the Tellurium Lead linings have been in three years and have not yet required repair.



Flash Test: Strips of Tellurium Lead (top) and lead without tellurium (bottom) after immersion in 96% sulphuric acid at 581° F. for 3 minutes. Tellurium Lead weight loss, 0.97%—other lead, 5.11%.



Stability of Grain Structure: Grain structure of Tellurium Lead (top) and lead without tellurium (bottom) after annealing six months at 302° F. The grains of the lead without tellurium "grew" during the annealing; those of Tellurium Lead remained the same size.

TELLURIUM LEAD

NATIONAL LEAD COMPANY—New York, Baltimore, Buffalo, Chicago, Cleveland, Cincinnati, St. Louis, National-Boston Lead Co., Boston; John T. Lewis & Bros, Co., Philadelphia; National Lead & Oil Co. of Penna., Pittsburgh; Georgia Lead Works, Atlanta; American Lead Corp., Indianapolis; Master Metals, Inc., Cleveland; The Canada Metal Co., Ltd., Toronto, Montreal, Winnipeg, Vancouver.

Summer 1943

. . . conjures-up memories of happy yesterdays, and hopes of even happier tomorrows-after the evil forces of greed, selfishness and aggression have been beaten-down . . . and Peace on Earth once again reigns supreme.

Let us all stand united and determined in this one great cause.

DURABEAU FINISHES assure improved appearance, longer service life, softness and lasting eye appeal and beauty. The "film of protection" for all knitted and woven fabrics.

DuraBeau FINISHES
Reg. U. S. A. & Canada

SCHOLLER BROS., INC. • Mfrs. of Textile Soaps, Softeners, Oils, Finishes
Collins & Westmoreland Streets, Phila., Pa. • St. Catharines, Ont. Can.

For FASTEST DELIVERY ship when ready!

YOU can expedite delivery of your AIR EXPRESS packages and help avoid congestion of vital war shipments by shipping as early in the day as possible.

This will help us get your shipments on the "earliest plane out" so they will be delivered sooner than if you waited until end of day when airline traffic is at its peak.

And to cut costs—AIR EXPRESS should be *packed compactly but securely*—to obtain best ratio of size to weight.

Air Express Speeds War Program

TODAY, AIR EXPRESS not only serves the home front but is also working hand in hand with the Army and Navy to supply our fighting fronts throughout the world.

TOMORROW, AIR EXPRESS will girdle the globe in international peacetime commerce . . . to bring *all* foreign markets to the doorstep of American business.

AIR EXPRESS
Gets there FIRST

Phone RAILWAY EXPRESS AGENCY, AIR EXPRESS DIVISION
Representing the AIRLINES of the United States

WRITE for our quick-reference handbook on "How to Ship by AIR EXPRESS During Wartime." Dept. PR-1, Railway Express Agency, 230 Park Avenue, New York City.

THERE'S NO MAGIC ABOUT IT!

IT'S JUST *Electronics* AT WORK

AIR CLEANING *By Electricity*

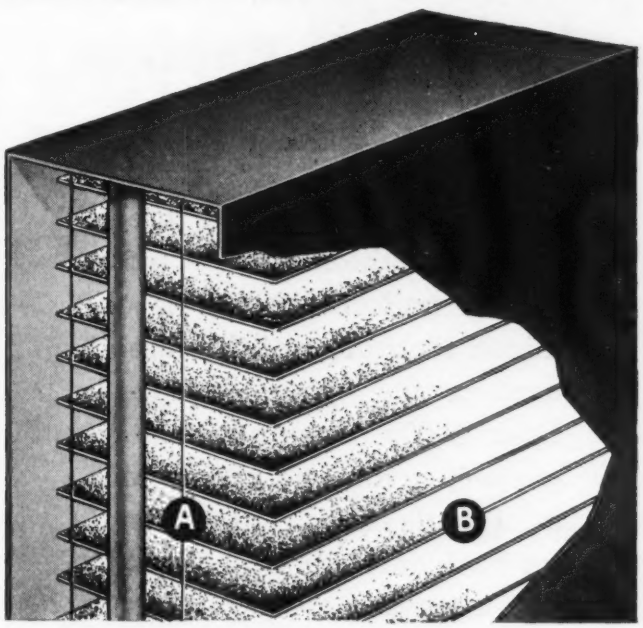
gets more than 90% of ALL particles down to 1/250,000 of an inch

There is no mystery about PRECIPITRON*—the new Westinghouse air cleaner that operates by electricity. Yet it whisks smoke, haze and dirt out of the circulating air as if by magic. Even tobacco smoke, smallest of air-borne particles, is quickly "grounded" by the Precipitron.

Electronics is the secret of Precipitron's exceptional efficiency. Sealed within the ventilating duct so that all air must pass through it, the Precipitron operates silently, effectively, with no more moving parts than a storage battery. At the front of the unit (or cell), two fine tungsten wires and three grounded rods create a strong electrostatic field. As each particle of dust or smoke passes through this field, it receives a positive charge of electricity.

A series of collector plates are located back of the electrostatic field and as the charged particles pass into this area, they are drawn to the oppositely charged plates where they are deposited and adhere. These plates are then cleaned with water and the deposit flushed harmlessly down the drain.

Precipitron's efficiency, far above that of ordinary mechanical air filters, has given a new meaning to industrial air cleaning. For full information write Westinghouse Electric & Mfg. Company, Edgewater Park, Cleveland, Ohio. Ask for folder B-3083.



A. Electrostatic field at the front of the *Precipitron*. Here all dirt and dust particles are given a positive charge of electricity.

B. Series of collector plates, to which charged dirt particles are attracted and adhere.

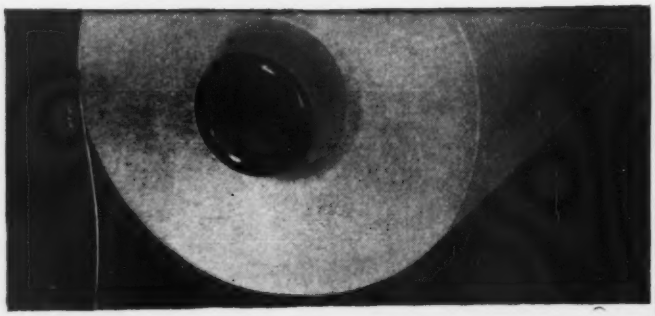
*Trade-mark registered in U. S. A.

WESTINGHOUSE

PLANTS IN 25 CITIES
OFFICES EVERYWHERE

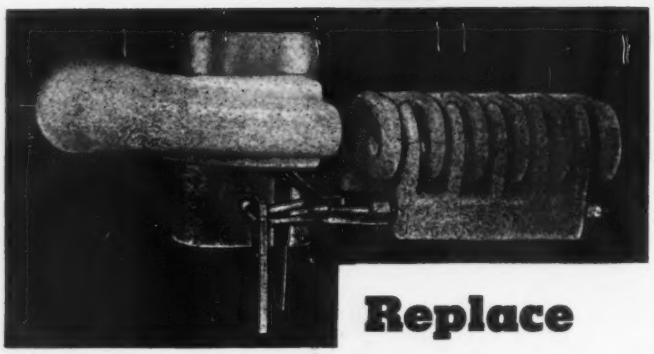
Westinghouse Precipitron

Electronics at Work



COUNTER-BALANCED TENSION

Patented



Replace Your Present Tensions

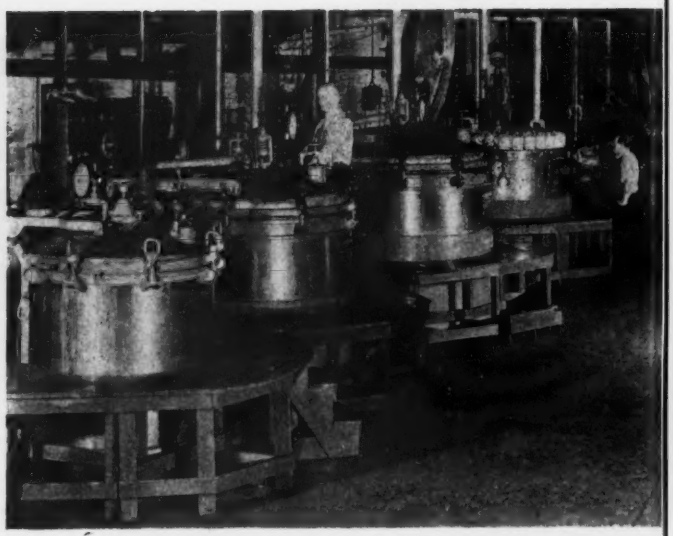
with the only balanced thread tension on the market. A guaranteed uniform tension is obtained regardless of the thread used or the speed employed. Over 20,000 already in use in woolen, rayon and cotton mills in all parts of the country. Send for trial order or write for full information.

Robert Reiner, Inc.

Weehawken, N. J.

(10 minutes from Times Square via Lincoln Tunnel)

ROBERT REINER INCORPORATED



Some of our package dyeing machinery

RAYON OR COTTON OR MIXED YARNS

Globe DYE WORKS CO.

DYES THEM ALL

For seventy-eight years the big Globe plant at Frankford has been doing efficient yarn dyeing.

Globe's large staff of skilled workers make use of the best and most modern equipment for package skein and warp dyeing, to afford a complete and efficient dyeing service.

Globe's men who call on the trade are men whose actual dyeing or textile manufacturing experience fits them to help customers solve any kind of yarn dyeing problem.

You Can Rely on Globe

GLOBE DYE WORKS CO.

Dyers, Bleachers and Mercerizers of cotton skein yarns and warps. Dyers of rayon, spun rayon, Aralac, nylon and novelty yarns. Package dyeing on tubes.

FRANKFORD, PHILA., PA.

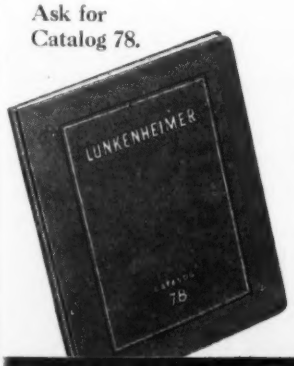
Wherever There's WAR ACTIVITY There's a DISTRIBUTOR Serving It . . .

The distributor is rendering an indispensable service these days. With his complete familiarity with requirements and sources of supply, he is helping hard-pressed procurement offices to obtain vitally needed equipment and supplies for the Army, Navy, Maritime Commission and Air Force...not to mention his services to the thousand-and-one other industries engaged in war work.

He's alive to the needs of the times and his wide experience qualifies him as the logical force to ferret out those needs...he's here, there and everywhere—any hour of the day or night. He knows that he justifies his existence only in the measure that he renders service. Once he receives an order, he is, by the very nature of his business, the best expediter in the world, because his organization is *trained* to get things through in the shortest possible time.

Long ago, Lunkenheimer recognized the distributor as the most efficient and economical means of marketing its products and built up nation-wide distribution through leading supply houses. We salute these distributors for the outstanding job they are doing in helping to speed up war production.

Ask for Catalog 78.



ESTABLISHED 1862

NEW YORK BOSTON

THE LUNKENHEIMER CO.

"QUALITY"

CINCINNATI, OHIO, U. S. A.

CHICAGO PHILADELPHIA

EXPORT DEPT., 318-322 HUDSON ST., NEW YORK

BRONZE, IRON, STEEL AND CORROSION RESISTANT ALLOY VALVES, 125 TO 2500 LB. S.P.; BOILER MOUNTINGS, LUBRICATING DEVICES, AIRCRAFT FITTINGS

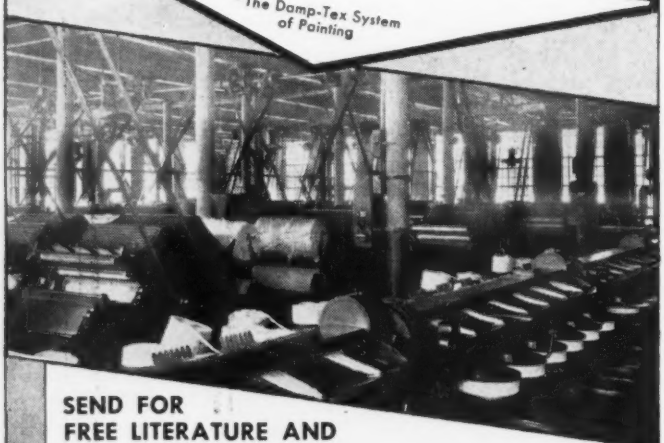
PAINT PROTECT BEAUTIFY WALLS AND EQUIPMENT WHILE THEY'RE WET

Get Dry Surface Results, Including Quick Drying

Damp-Tex* Kills Rust, Fungus. Stops Deterioration. Produces Porcelain-Like Finish.

1. Damp-Tex Enamel sticks to any wet surface. Helps force out moisture. Then dries into a tough waterproof film.
2. Contains no flavor tainting odor.
3. Resists oxidation, corrosive gases. Will not crack, blister, check or peel.
4. One coat covers. One gallon covers 450 square feet of wood or metal surface, 360 square feet of cement, brick, or porous surface, wet or dry.
5. Dries in a few hours. Comes in white and colors.
6. Can be washed repeatedly. See no-risk offer below.

*The Damp-Tex System of Painting



SEND FOR FREE LITERATURE AND NO-RISK TRIAL OFFER

For complete details about Damp-Tex and our offer to furnish all materials at our risk for your first Damp-Tex paint job send for folder I.

DAMP-TEX The Enamel Made Expressly for Wet Surfaces

STEELCOTE MFG. CO., SAINT LOUIS, MO.

WHY?

"Flameproofing" garments, gloves and other protective articles may spell the difference between an active war worker and a sick-list absentee! That's why the armed forces and many manufacturers have adopted flameproofing — that's why it is an essential safety finish.

Du Pont Fire Retardant "CM" prevents flash fires caused by stray sparks . . . the spread of flame . . . and dangerous afterglow. It will not effloresce or stiffen fabrics.

Other well-known Du Pont Fire Retardants include Fire Retardant "T", Ammonium Sulfamate and Fire Retardant "3WG"—each recommended for specific applications.

Du Pont Fire Retardants can be used to flameproof all types of fabric except acetate rayon. They do not change the color of most dyestuffs and have only a minimum effect on textile strength. Write for full information on flameproofing your fabrics or finished articles. Working samples are available. E. I. du Pont de Nemours & Co. (Inc.), Grasselli Chemicals Department, Wilmington, Delaware.

DU PONT

FIRE RETARDANTS

Better Things for Better Living . . . Through Chemistry

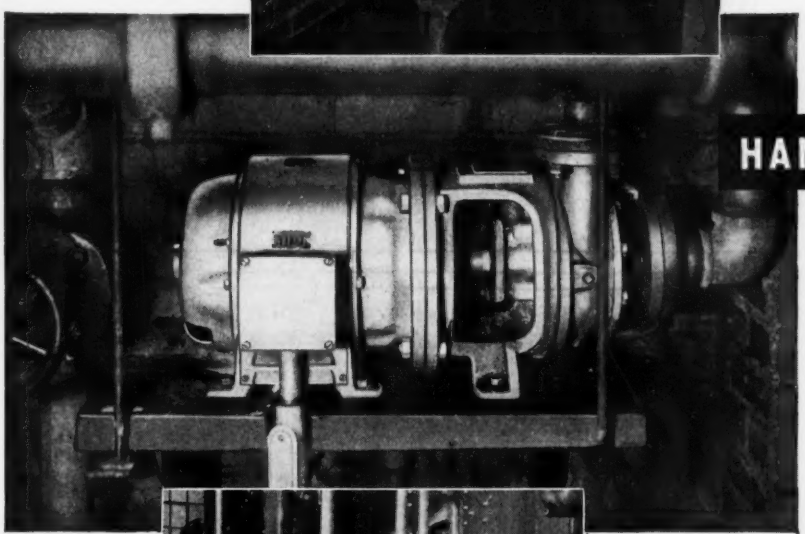
WHERE PUMP SPACE IS LIMITED... *Try These Ideas*

MOUNT IT ON THE WALL

The oversize bearings in the Motorpump assure just as trouble-free operation in a vertical as in a horizontal position.

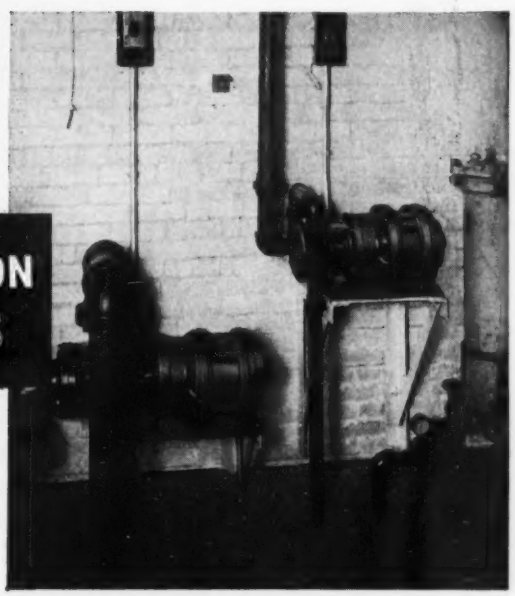
The Motorpump is a 24-hour-a-day pumping unit. Pump and motor are built together on the same shaft, making it unusually compact and rigid.

It is available with motors from ¼ to 40 hp to handle from 5 to 1800 gals per min against pressures as high as 215 lb per sq in. Suitable modifications and accessories are available for special pumping applications and difficult-to-handle liquids.



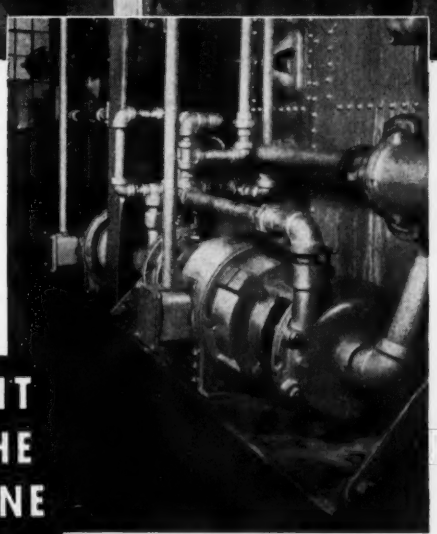
HANG IT FROM THE CEILING

The compact construction of the Motorpump makes it possible to use many space saving ideas.



PLACE IT ON BRACKETS

Brackets not only save space but also bring the pump up to a convenient height.



PUT IT ON THE MACHINE IT SERVES

This idea saves space and reduces piping and foundation expense as well as adding to the convenience.

Ingersoll-Rand

CAMERON PUMP DIVISION

9-200 11 Broadway • New York, N.Y.

1854 1943

We have been factors to the textile and allied industries for 89 years. Our efficient credit checking facilities, together with the purchase of accounts receivable, furnishes our clients with additional working capital while relieving them of all credit risks.

We invite your inquiry as to our services.

James Talcott, Inc.

★ FACTORS ★

225 Fourth Avenue, New York City

Where

Trade Orders Meet*

*New York Cotton Exchange

Established 1870

the vital medium for cotton distribution

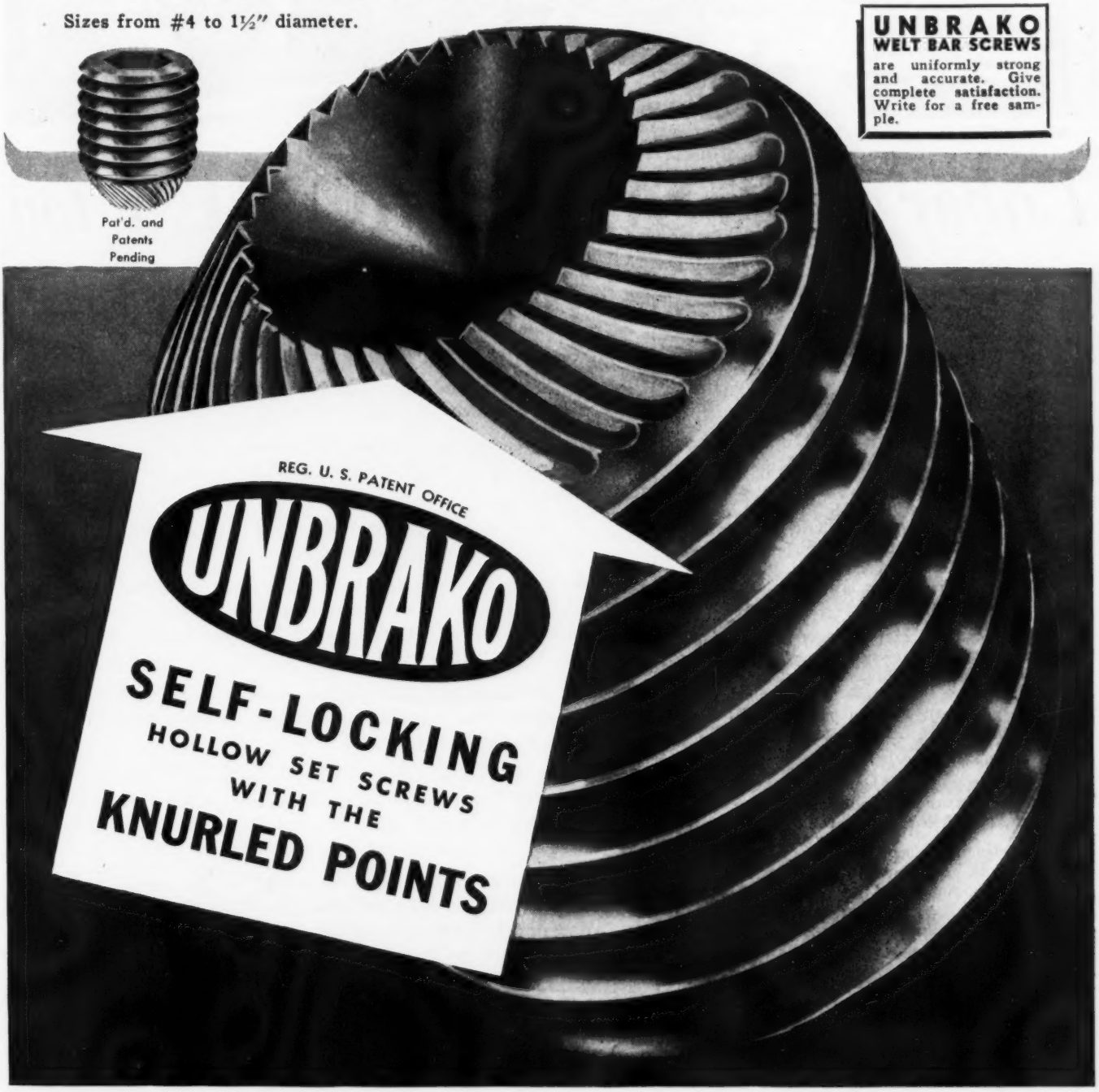
AN *Easy Way* TO GET RID OF ONE OF YOUR WORRIES...

On those looms and other machines in your mill where it's possible for ordinary set screws to work loose and cause you trouble and delays, take this easy step. Replace the plain screws with "Unbrako" Self-Lockers. Just tighten them up as usual and the knurled points dig in and hold the screws tight in spite of vibration or jarring. They're easily removed, though, with a wrench and can be used over and over. Don't wait any longer to get this easy, inexpensive protection.

Sizes from #4 to 1½" diameter.

UNBRAKO WELT BAR SCREWS are uniformly strong and accurate. Give complete satisfaction. Write for a free sample.

Pat'd. and Patents Pending



STANDARD PRESSED STEEL CO.
JENKINTOWN, PENNA. BOX 571

— BRANCHES —

BOSTON • DETROIT • INDIANAPOLIS • CHICAGO • ST. LOUIS • SAN FRANCISCO

Knurling of socket screws originated with "Unbrako" years ago.

This
NEWSPAPER
advertisement was published in Washington, New York and Chicago by McGraw-Hill, to make friends for business.

Labor needs SEED MONEY *too*

The Idea is Spreading

Some weeks ago, we began offering mats of the "Seed Money" series of McGraw-Hill newspaper advertisements to industrial managements, for use over their own company signatures. As a result of this offer, our "Seed Money" messages now are being carried in more than 25 newspapers.

An adaptation of the theme is appearing in 1,424 weekly newspapers and 2 national farm journals. In addition, many thousands of booklet reprints of each advertisement are being purchased by various companies for distribution to their employees.

Other companies are reprinting or quoting these messages in their house organs, and newspaper editors are beginning to give recognition to the "Seed Money" theme editorially.

We plan to continue the series in Washington, New York and Chicago newspapers, and in our own group of publications. It will help accomplish this important educational job if more manufacturers will sponsor this, or a comparable campaign in their own localities.

We will be glad to send you a mat of this particular advertisement in 1,620-line size for newspaper reproduction, with the signature space left blank for your own company name.

James H. McGraw, Jr.

President

McGraw-Hill Publishing Company, Inc.

IN many an advertisement, we have thumped the tub about the need for Seed Money, to give *industry* a chance to provide jobs after the war.

Labor is an important part of industry, and *labor* needs Seed Money, too.

After all, the problems of an individual worker and the man who runs the plant he works in are very much alike.

Both face the problem of getting out war production at constantly increasing speeds.

► Both face the problem of what to do about the men who will return when the war is over . . . the manager must plan for hundreds of such men, the worker for a son, or brother, as well as himself.

The manager runs a giant machine, which we call a factory. The worker runs a single machine. Together they are INDUSTRY.

In this sense, every worker is in business for himself. He "rents" the use of a machine, and pays for it with his time and skill. His wages, above his actual cost of living, represent his profit.

In war, each worker is asked to get more and more work out of his machine. Every time the worker does more work in less time, he creates a profit. That profit must go somewhere, and that's where tangled thinking starts.

Some people say "Don't let labor have the profit. That will raise prices and cause inflation." Others say "Labor created the profit, they should have it all." Still others say "Profit from war is unthinkable. It should be destroyed by taxes."

Don't you see that none of these things is true. High

[FREE MATS: If you would like to publish this message over your own company name, or distribute it in handy booklet form, write or wire: Research Dept., McGraw-Hill Publishing Company, Inc., 330 West 42nd St., New York.]

Labor needs SEED MONEY too (cont'd)

wages cannot raise prices, as long as they are the result of doing more work in less time. Henry Ford proved that a generation ago.

What Creates Inflation?

It is spending, not earning, that creates inflation! War Bonds can be made to control spending, and War Bonds ARE Seed Money. They are the money we put aside to take care of us in the days when our machines will need some other purchaser than the Army and Navy.

The money for War Bonds comes from the profit that is available to labor, management and owners, when machines are run efficiently.

That is the great advantage of capitalism. While we are running our machines at top speed in the titanic waste of war, these same machines are piling up profits that can be used to rebuild our country and our lives when the war is over.

► Part of this profit belongs to labor, part belongs to owners and managers for developing still better machines, part belongs to the customer in the form of lower prices (in war, the customer is Uncle Sam). If that sounds like our Fighting Men get no benefits from these profits, remember that the faster our machines run, the shorter the war will be. If you were a soldier, what kind of country would you like to come back to? One that was flat on its economic back, or one where people were in shape to work and offer you a chance to earn a living?

We believe competition between workers, as well as between industries will produce the goods to win this war faster than any other method man can devise.

The best method ever developed to encourage the competitive spirit is the automatic reward system which we call capitalism.

It's time for folks to understand what makes capitalism tick. We can get more war production, and slip back into high gear faster after the war, if we look at industry the way it is and make our laws and regulations on the basis of the way it works best.

► Here is the formula that is most successful in putting human nature to work on *any* production job, either in war or in peace:

1. Constantly improve the equipment available for the workers.
2. Use the lowered costs thus produced to
   (a) lower prices to consumers.
   (b) raise wages.
   (c) provide incentives for invention, investment, and individual enterprise.
   (d) lay aside "Seed Money" that can be used to start over again at item 1.

"Seed Money" produces better living

► America has always been an inventor nation. Throughout the years, most of the profits of business have been used to buy inventions . . . better machines, more efficient factories, research for better products. We call profit that is "plowed back" into business "Seed Money." Through Seed Money, products are constantly improved, making possible lower prices and higher wages.

Did you know that this process of putting aside Seed Money has been almost entirely eliminated by our tax law?

Congress, in shutting the door on wartime profiteers, wrote the Excess Profits Law in such a manner that it also takes away most of the Seed Money of business.

Industry must have Seed Money to continue the work of making better products available at lower costs, to create more jobs and pay higher *real* wages. The Excess Profits Law must be changed if we are to provide Seed Money for making post-war jobs. If you think so, too, ask your Congressman to review this law and all laws—with this principle in mind:

"Industrial Progress
is the Source of all Good Living."

THE McGRAW-HILL NETWORK OF INDUSTRIAL COMMUNICATION

22 publications, which gather "war-news" from the "war-production-front" through a staff of 153 editors and 725 engineer-correspondents . . . More than 1,500,000 executives, designers, production men and distributors use the editorial and advertising pages of these magazines to exchange ideas on war-production problems.

McGRAW-HILL BOOKS

Publishers of technical, engineering and business books for colleges, schools, and for business and industrial use.

This advertisement is available in handy booklet form. (Less than 100 copies free. Larger quantities, $1.50 per 100; $10.00 per 1000.)

McGRAW-HILL

PUBLISHING COMPANY, INC. . . . BOOK COMPANY, INC.

330 WEST 42ND STREET, NEW YORK

THE McGRAW-HILL NETWORK OF INDUSTRIAL COMMUNICATION:

American Machinist • Aviation • Bus Transportation • Business Week • Coal Age • Chemical & Metallurgical Engineering • Construction Methods • Electrical Contracting • Electrical Merchandising • Electrical West • Electrical World • Electronics • Engineering & Mining Journal • E. & M. J. Metal and Mineral Markets Engineering News-Record • Factory Management & Maintenance • Food Industries • Mill Supplies • Power • Product Engineering • Textile World • Wholesaler's Salesman • Business Publishers International Corporation, an affiliate, publishers of Business and Technical Magazines for Latin America, and Overseas Circulation.

"ACME STEEL" ON THE SEAL FOR PERFECT SHIPPING

Your shipments are "Bound to Get There" when protected with Acme Bale Ties and Steelstrap. Applied with fast-operating Acme strapping equipment, these Acme reinforcing procedures help to keep up with the rush wartime requirements.

The clean finish and smooth edges of Acme Bale Ties and Steelstrap eliminate the possibility of damage. Furnished in all widths and gauges . . . in continuous-length coils and in cut lengths. Acme tools and accessories are available for every need. The Acme No. 9 Sealer, for instance, is preferred by many millmen. Light in weight, this heavy-duty bale sealing tool permits a stronger joint with less effort.

With carton packs, many mills employ Acme Steelstrappers — one piece, magazine seal-fed strapping tools which do the job faster and easier. Acme Bale Ties and Steelstrap meet all Federal Strapping Specifications. Write today for all the facts.

Cartons, too, are often classed as bales when steel-strapped, which also serves as a means of closure and reinforcement against damage and pilferage.

ACME STEEL COMPANY

General Offices: 2838 Archer Ave., Chicago, Illinois
Atlanta, 603 Stewart Ave. S.W. · Boston, 146 Summer Street
New York, 103 Park Ave. · Philadelphia, 201 Lafayette Bldg.

ACME STEEL CO. CHICAGO

"FIRING LINES"

On "Firing Lines" the world over, consistent, superior performances are the difference between victory and defeat!

Likewise, the right Ring Traveler's superior performance can mean the difference between winning and losing the production battle on your Spinning Room "Firing Line"!

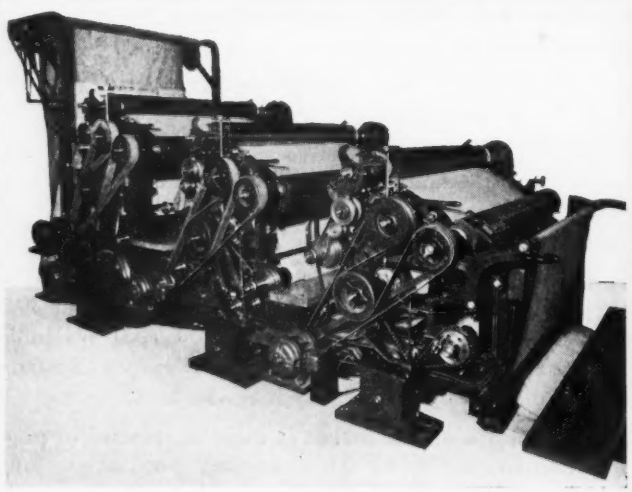
Dary is "The Right Traveler" —ask a Dary representative "Why" today!

THE

DARY RING TRAVELER CO.

TAUNTON, MASS.

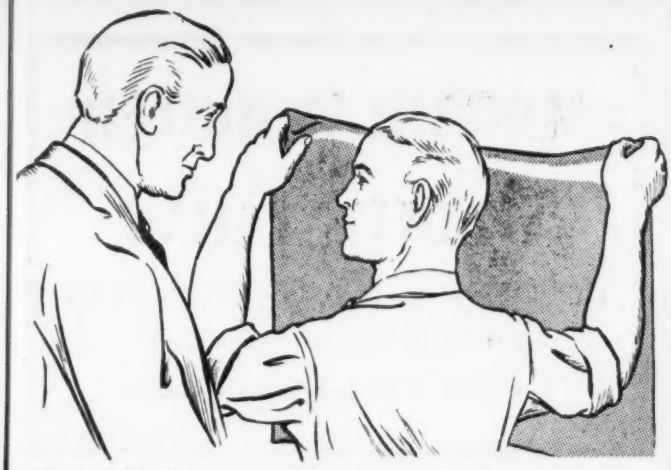
JOHN E. HUMPHRIES, Box 843, Greenville, S. C.
JOHN H. O'NEILL, Box 720, Atlanta, Ga.
H. REID LOCKMAN, Box 515, Spartanburg, S. C.



DAVIDSON 3 BLADE SHEAR
WITH
HEADING SAVERS
Adds Enough Finished Cloth
To Each Cut To Soon Pay
WHOLE INVESTMENT

HOGUE HONING ATTACHMENT IS INCLUDED

PARKS & WOOLSON MACHINE CO.
SPRINGFIELD, VERMONT

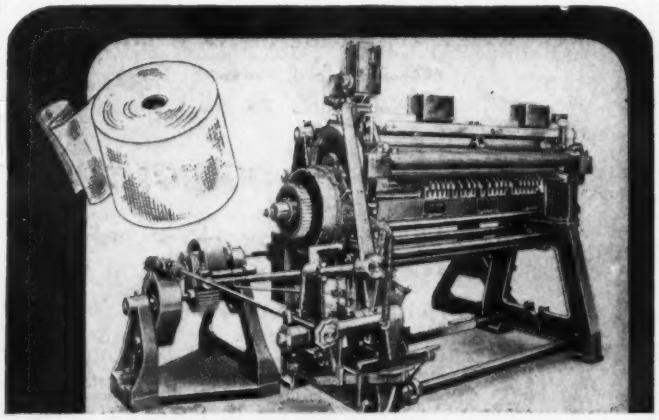


There'll be no rejects on this cloth since we switched to—

BOOTH
QUALITY CARD CLOTHING

Benjamin Booth Company
ALLEGHENY AVENUE and JANNEY STREET • PHILADELPHIA, PA.

51 YEARS OF SERVICE



28,800 2" BANDAGE ROLLS PER 8-HOUR DAY

BANDAGES with clean-cut edges are slit and rewound with Camachine 40-4B at remarkably profitable speeds. Features include score-cut edges, free from fraying; automatic measurement of rolls; ease of roll width changes; controlled density and uniformity of winding, with freedom from wrinkles; convenient cut-off device and easy removal of finished rolls; and other revenue earning advantages gained through specialization in this field. Write for descriptive folder and specifications.

CAMERON MACHINE CO., 61 Poplar St., Brooklyn, N. Y.
Midwest Office: Harris Trust Bldg., 111 W. Monroe St., Chicago

CAMACHINE

How Big Rayon Mill
Stops Bearing Failure
With Many-Purpose Lubricant

Ask Anyone in Industry!

ALEMITE
Solidified Oil

Lubricates Perfectly
Under Severe Load Strains and Heat

BY REPLACING several other lubricants with Alemite Solidified oil, this big rayon mill accomplished two things. First, it obtained perfect lubrication of vital bearings operating under severe load, speed and heat conditions. Second, lubrication time was cut down, confusion avoided and product spoilage reduced.

This famous lubricant is used in many leading mills—on looms and knitters, spinning frames, carding machines and front roll stands, protecting valuable equipment essential to the war effort.

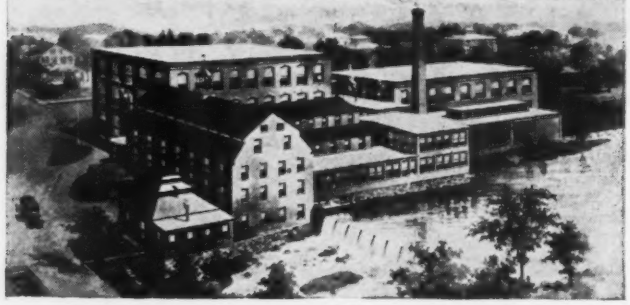
Write today for your FREE copy of the latest Alemite Industrial Lubrication Manual which answers literally hundreds of lubrication questions.

Another Product of STEWART WARNER

ALEMITE
REG. U.S. PAT. OFF.
Industrial LUBRICATION

1888 Diversey Parkway, Chicago, Illinois • Belleville, Ontario

WORLD'S LARGEST RING-MAKING PLANT



Home of Quality

In DIAMOND FINISH rings you get the product of 70 years know-how. When you want to go all out for production, it's safe to rely on a firm that has gone all out for ring quality since 'way back. The solid value in our rings, plus the unmatched advantages of our exclusive Eadie Speed designs, permits the topmost production standards.

We Make All Types of Holders

WHITINSVILLE (MASS.)

SPINNING DIAMOND FINISH **RING CO.**

Makers of Spinning and Twister Rings since 1873

MOHAIR WORSTED

AND

WOOLEN YARNS

COLLINS & AIKMAN CORPORATION

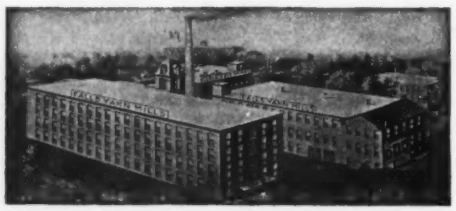
PERCY A. LEGGE *Sales Agent*

New York • Philadelphia • Boston

FALLS YARN MILLS

WOONSOCKET, R. I.

Incorporated 1904



Fine Woolen and Specialty Yarns For Weaving and Knitting

SELL DIRECT

NEW YORK	PHILADELPHIA	CHICAGO
Stanley Porter	Harold R. Shirley	C. M. Patterson
257—4th Ave.	Commercial Trust Bldg.	222 West Adams St.

THOS. WOLSTENHOLME SONS & CO. INC.

3300 Frankford Avenue

Philadelphia, Pa.

Yarns for all purposes

French and English Spun Worsted

French Spun Zephyr

French Spun Merino

Representatives:—

BOSTON—Perkins & Boland, Inc., 99 Chauncy St
LOS ANGELES—Arthur Bone, 4436 Worth St.
CHICAGO—C. P. Peffer, 222 W. Adams St.

COTTON WARPS

Cotton Yarn and Warps . . Single or Ply . . White or Colored . . Carded . . Combed

Novelty yarns—of cotton, worsted, wool, mohair, rayon—in all fashionable combinations and effects and in many original effects. Write for samples.

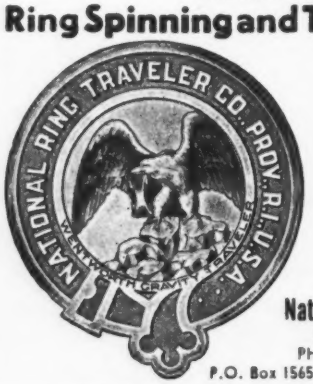
Sell Direct

Dana Warp Mills . . Westbrook, Maine

THE OLDEST AND LARGEST

MANUFACTURER OF

Ring Spinning and Twister Travelers



In the UNITED STATES

American • Hicks • Wilson

United States Standard Wentworth Double Duty and Gravity Travelers

MAKE STRONGER YARN

National-Etartnep Finish
A New Chemical Treatment

Write Us

National Ring Traveler Company

354 Pine St., Pawtucket, R. I.

PHILIP C. WENTWORTH, *Treas.*

P.O. Box 1565, Providence, R. I. Charlotte, N. C.

Remember this trademark for

RAYON TOPS

ANDREW K. HENRY
158 SUMMER ST.
BOSTON, MASS.

BE *Fresh* IN HIS DREAMS . . . . *always!*

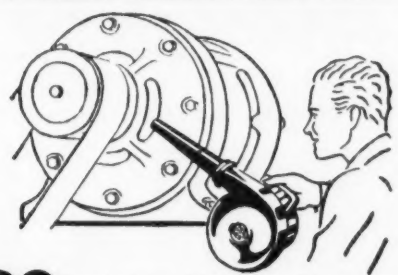
As part of the wartime service program of the American Cotton Industry, page advertisements in July issues of Mademoiselle and Charm will feature *Cotton Freshness* in wartime fashions.

Write for information on how you may use this national campaign profitably in your sales program, without cost or obligation.

COTTON-TEXTILE INSTITUTE
320 Broadway, New York

NATIONAL COTTON COUNCIL of AMERICA
69 Union Avenue, Memphis, Tennessee

Blow Out Dust — Keep Motors and Machinery Clean with



TORNADO Portable Electric Blowers

PREVENT motor burnouts, overheating and shutdowns. Keep motors and machinery clean. Blow out dust, dirt, lint, chips, etc. with the powerful, portable TORNADO Electric Blower. Quickly pays for itself in cutting repair and replacement costs. Write for details and FREE Trial Offer

Request details on Low-Priced Air-Raid Sirens

BREUER ELECTRIC MFG. CO. 5086 Ravenswood Ave. CHICAGO, ILLINOIS

MURDOCK Bobbin Holders

Two exclusive Features Affording Long Life:

1. Automatic-bobbin holders equipped with holding wings electrically hardened all the way through.
2. Holding wings hold positively in position by skeleton washer—no sliding around.

We make holders for ¾" to 2½" bobbin heads, including large-package wood and paper bobbins, also special bobbins. Duplex holders take both automatic and non-automatic bobbins. Holders for all types of mules, frames, twisters, and winders.

MURDOCK & GEB CO., Franklin, Mass.
Manufacturers of Bobbin Holders for Over Fifty Years

The Safe, Approved Lubricant for Ball and Roller Bearings

1. Used and recommended by nearly ALL makers of anti-friction bearings.
2. Makers of TEXTILE machinery fitted with ball and roller bearings use NON-FLUID OIL to assure most efficient service.
3. A majority of mills guard against faults of grease and obtain longest life from ball and roller bearings by using NON-FLUID OIL.

Write for instructive bulletin

New York & New Jersey Lubricant Co.
***Main Office:* 292 Madison Ave., New York, N. Y.**
Southern Agent, Falls L. Thomason, Charlotte, N. C.

WAREHOUSES

Chicago, Ill.		**Atlanta, Ga.**
Providence, R. I.	**Detroit, Mich.**	**Charlotte, N. C.**
St. Louis, Mo.		**Greenville, S. C.**

TRADE MARK REGISTERED
NON-FLUID OIL
IN U.S. PAT OFFICE & FOREIGN COUNTRIES

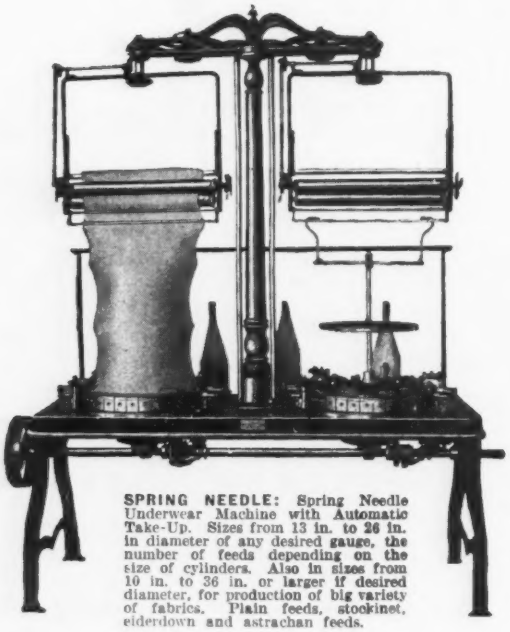
MODERN TEXTILE LUBRICANT

Better Lubrication at Less Cost per Month

CRANE

KNITTING MACHINES

meet the need for Speed—
for Quality and Low Cost



SPRING NEEDLE: Spring Needle Underwear Machine with Automatic Take-Up. Sizes from 13 in. to 26 in. in diameter of any desired gauge, the number of feeds depending on the size of cylinders. Also in sizes from 10 in. to 36 in. or larger if desired diameter, for production of big variety of fabrics. Plain feeds, stockinet, elderdown and astrachan feeds.

CRANE Knitting Machines meet the demands of rapidly changing patterns and styles. Their middle name is *versatility* . . . plus smooth, fast running operation that eliminates expensive stops. Among their exclusive features are patented hardened Wing Burr Wheels and patented Thread Stop Motion. There's many a Knitting Mill in which batteries of Cranes are the mainstay of production.

Let us tell you why —and how . . . just ***WRITE***

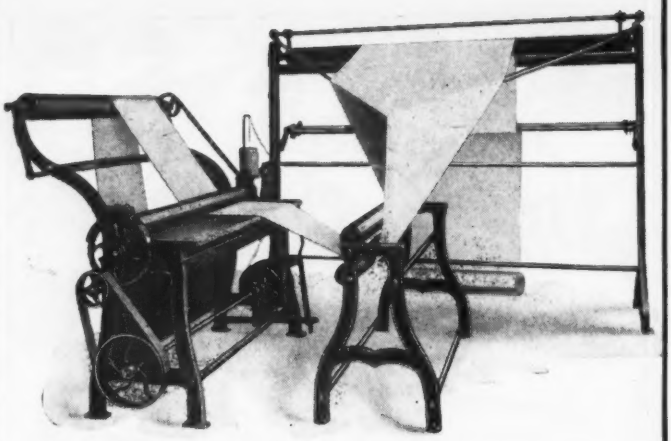
CRANE Improved Automatic
3 Colored

Improved Automatic 3 Colored Plain Stripes. Made in sizes from 7⅝ in. to 20⅝ in. inclusive, of any desired gauge. Measurements are back to back of cylinder needles. Knit fabrics for bathing suits, theatricals, athletic goods. Crawford stop motion applied when requested.

1870 **CRANE** 1943

MANUFACTURING CO.
LAKEPORT, N. H.

Spring Latch Needle
KNITTING MACHINERY



No. 27—IMPROVED DOUBLING AND TACKING MACHINE

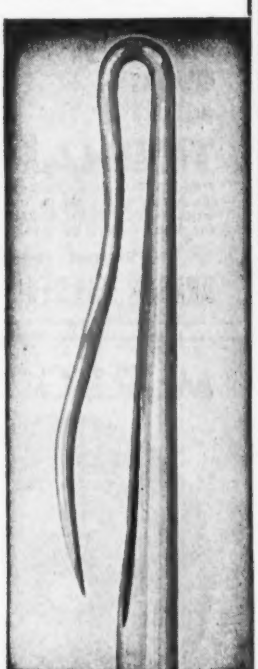
Sewing any length stitch up to 1¼ in., making a firm, strong stitch for any weight or width of goods. This machine is equipped with our latest oscillating needle bar sewing head, which makes it the fastest tacking machine on the market for tacking the selvages of woolen and worsted fabrics. For further information, send for our catalog.

DINSMORE MFG. CO.
SALEM, MASS.

CHARLES COOPER CO., INC.
Bennington, Vermont

Manufacturers of
Quality LATCH and SPRING-BEARD

NEEDLES



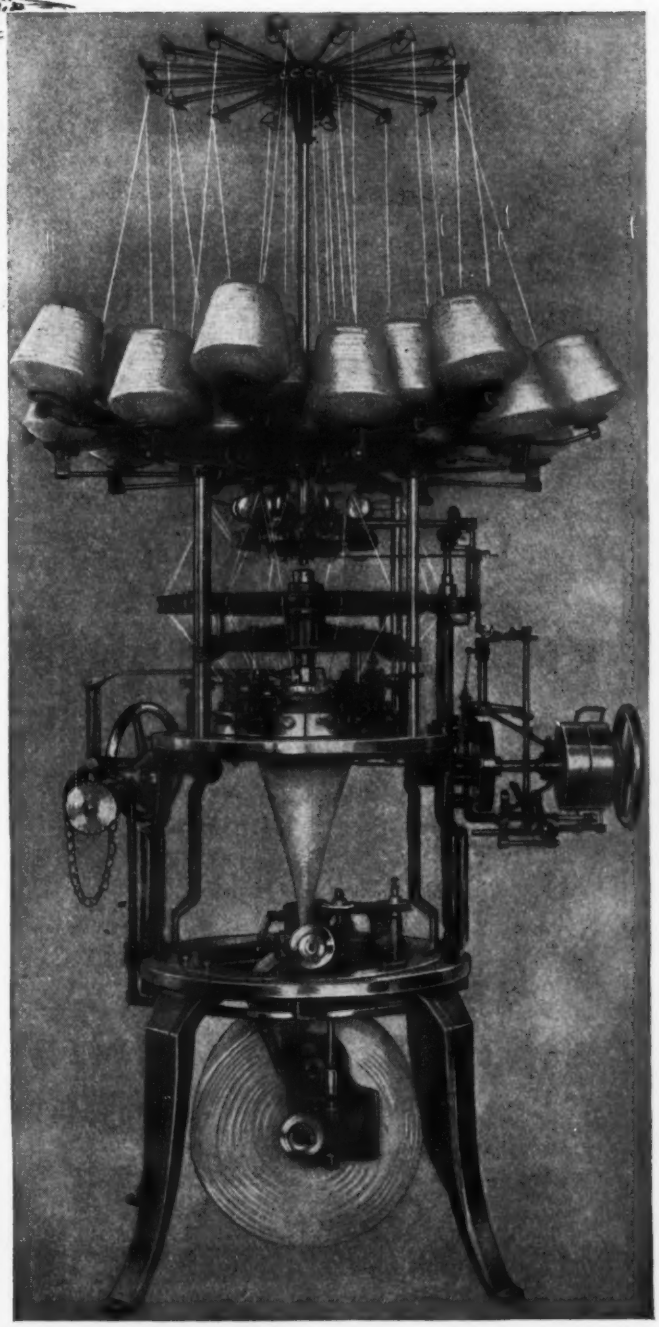
also
Manufacturers of **THE FAMOUS COOPER CIRCULAR SPRING-NEEDLE RIB KNITTING MACHINES**

WILDMAN MULTIPLE FEED RIB MACHINE

If there were a DECK GUN

that would fire twice as many shells in a given time as any other, and that required no more deck room, the Navy would grab it.

Well, you are fighting too—fighting a production battle, with limited factory space and man hours; and here's YOUR 2-to-1 machine as hundreds of alert knitting mills have discovered. On the same floor space that an 8-feed machine requires, you can put this Wildman 16-feed machine, and using only 1/3 more power, it will

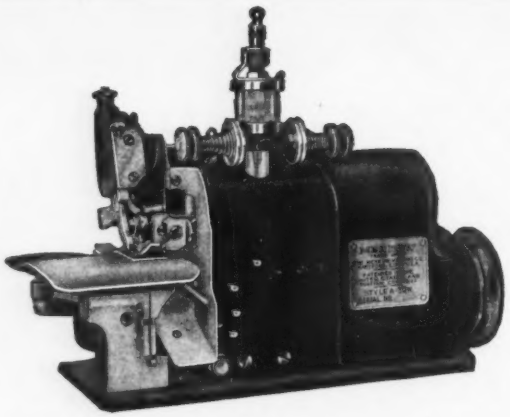


DOUBLE PRODUCTION

Besides, you'll get trouble-free performance, a finer, more uniform product, and many other advantages that we'd like to tell you about. Write today.

WILDMAN
MFG. CO., NORRISTOWN, PA.

For **AMERICA** "Throw **YOUR SCRAP** into the Fight"



Merrow Class A Machines, illlustrated, have made possible quality production, high speed and low operating costs to a degree greater than ever before. They are easy to handle, simple to adjust, sturdy in design, accurate in workmanship and readily adapted to many kinds of work. Let us or our distributor nearest you demonstrate the work of these machines on samples of your own fabric.

MERROW HIGH SPEED

OVEREDGING, OVERSEAMING AND HEMMING MACHINES

Produce Federal Specification Stitch
Types 501, 502, 503, 504 and 505

WAR WORK DEMANDS

Quality Results—High Production
Convenient Handling
Minimum Time-Out for Adjustment
or Repair—Low Upkeep Costs

Obtain Maximum Quality Production by Using a Machine Suitably Arranged for Your Work—Our Distributors or Our Direct Representatives Are on Call to Advise You Suitable Machine Arrangements for Various War Work and Proper Care and Operation of Machine.

ESTABLISHED 1838 INCORPORATED 1894

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KNITTING MACHINES

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UNDERWEAR	OVERCOATS
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OUTERWEAR
HOSIERY
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Complete color assortments

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ESTABLISHED MORE THAN 100 YEARS

1842—1943

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Containing information on braiders

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For Circular, Full Fashioned, Tricot and Milanese Knitting Frames, also Narrowing, Stand, Transfer Points and Welt Hooks for Full Fashioned Machines; Slides, Sinkers, Jacks, Guides or Flat Eyes, Sley and Milanese Points, Transfer Points or Quills, etc.

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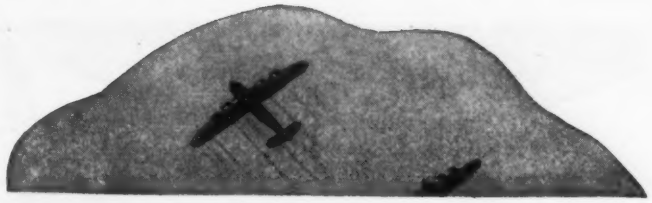
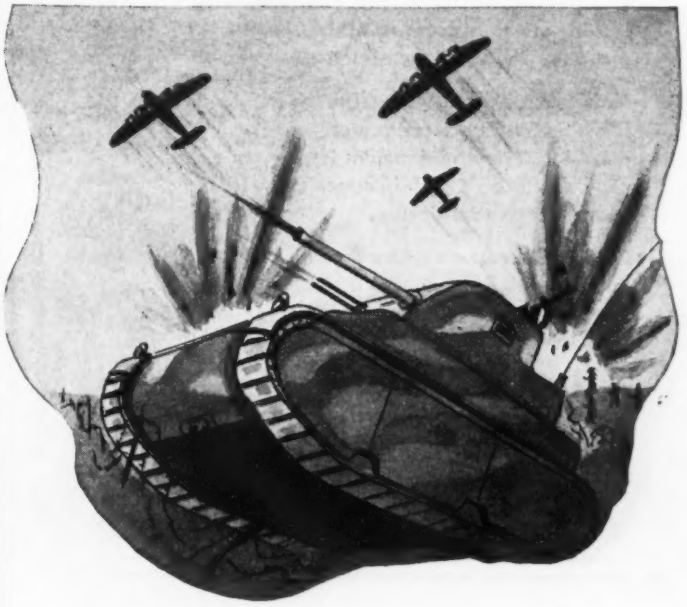
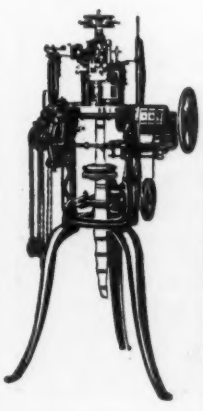


"FIRST THINGS COME FIRST"

FRANKLIN D. ROOSEVELT, PRESIDENT OF THE UNITED STATES



Your Uncle Sam has right of way insofar as our facilities are concerned. His requirements and his orders come FIRST, and we are proud to serve our country. At the same time, we regret that it may be necessary to ask our customers — users of Brinton Knitting Machines — to wait, until we can care for their needs.



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To a Good Bleach

Kier boil with sodium silicate—a purified grade such as "TN". This removes more of the pectin, wax, oil and other impurities. In addition, due to the special ingredient, soluble silica, it prevents all loosened dirt from redepositing on the clean cloth.

You get that increased whiteness before bleaching which saves you chlorine or peroxide. The improvement is one that you can measure both in superior whites and in more level dyeing.

Let us send you complete data on kier boiling with PQ Silicates of Soda.

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General Offices and Lab.: 125 S. Third St., Phila.
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PQ SILICATES OF SODA

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Laurel FINISHES

CAN HELP YOU MEET GOVERNMENT SPECIFICATIONS ★ ★ ★

WHETHER the requisition calls for cotton, wool, rayon, silk or mixtures, there's a Laurel Oil or Finish to help meet specifications and speed delivery. If there's a special purpose compound needed, we shall be glad to suggest formulae. Laurel technicians and research department have for over 30 years sought and found solutions to many textile processing problems. This experience is yours for the asking.

Throw your scrap into the fight!

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Laurel SOAP MANUFACTURING CO., INC.

WM. H. BERTOLET'S SONS ESTABLISHED 1909
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WAREHOUSES, PATERSON, N. J., CHATTANOOGA, TENN., CHARLOTTE, N. C.

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1. No boiling required.
2. Eliminates stuck places, creases and whiplashes.
3. Quickly saponifies oil, grease and dirt.
4. Prevents congealing when used with soap, even if latter is stone cold.

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THE STANDARD DE-SIZING AGENT

for cottons, rayons and mixed goods

For your de-sizing problems— our technical men are at your service . . . Write or 'phone.

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John:
The Starches and Gums which Penick and Ford manufacture for polishing twine and cord have been developed for every phase of this operation.
Lets try their recommendation.
Jim

ROME SOAP MFG. CO.

WRITE US FOR SAMPLES AND QUOTATIONS

MANUFACTURERS OF
Textile, Laundry
and
Special Soaps
ROME, N. Y.

D. R. KENYON & SON
RARITAN, N. J.

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MANUFACTURERS OF DYESTUFFS AND CHEMICAL SPECIALTIES

We offer to the Textile and Allied Trades a full line of

DYESTUFFS
DYEWOODS
CHEMICAL SPECIALTIES

The experience gained through many years of manufacturing quality products, progressive research policies and the faith of our customers allow us to face the present emergencies with confidence.

As in the past, we are prepared to help you with any manufacturing problems you may have. We place our experience and our research facilities at your disposal.

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A FULL LINE OF DYESTUFFS
CONVERTED STARCHES
WATERPROOFING AGENTS
SULPHONATED OILS
FINISHING COMPOUNDS
PENETRATORS
DETERGENTS AND OTHER
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COTTON MILL MAN
WANTED

We have been asked to locate a cotton manufacturer, preferably a textile school or technical graduate with practical experience in carding, spinning and weaving. He should be of superintendent caliber, able to figure costs unaided; must have had a wide experience and the ability to get along with people. This position will pay a good salary to start and the prospects for the future are very promising. Address in confidence.

Charles P. Raymond Service, Inc.
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Over forty years' confidential employment service for employers seeking men and men seeking positions.

(POSITION VACANT)

Dyer as Night Superintendent of entire plant wanted by reputable, progressive jig plant, experienced on acetate and rayon men's and women's linings, flat goods, etc. Finishing and chemistry knowledge helpful, not necessary. State age, draft status, experience, references, salary desired. Our organization knows of this advertisement.

P-579, Textile World
330 W. 42 St., New York City

POSITIONS VACANT

WANTED—Skilled inside factory man capable of running textile coating machine and train help. Confidential replies. P-582, Textile World 330 W. 42nd St., New York, N. Y.

TEXTILE MACHINE DESIGNER—Nationally known ray on manufacturer has an opening in their Central Engineering Department for a textile machine designer who is thoroughly acquainted with, and has had actual experience in the design of all types of textile equipment. Reply giving complete educational background, experience, draft status and salary desired. Applications from persons in essential industries will not be accepted. P-583, Textile World, 330 W. 42nd St., New York, N. Y.

NARROW FABRICS—Man with technical experience to assist Superintendent in weaving cotton non-elastic webbing. State experience and salary expected. P-584, Textile World, 330 W. 42nd St. New York, N. Y.

SEWING MACHINE FIXER wanted by large up-state New York knit underwear manufacturer. Permanent position. Fine opportunity for right party. P-585, Textile World, 330 W. 42nd St., New York, N. Y.

MECHANICAL ENGINEER—Textile machinery knowledge desirable but not essential. Excellent opening for qualified man seeking post-war security. Work in and around South Boston, Virginia, area. Write advising experience, education, age, martial status and salary expected. Please write fully on each item. If you are on a full time war job now, do not answer this advertisement. P-586, Textile World, 330 W. 42nd St., New York, N. Y.

WANTED Experienced Fixer for 24 Stafford Automatic Looms in Metropolitan New York district, state experience and age. P-593, Textile World, 330 W. 42nd St., New York, N. Y.

ASSISTANT TECHNICAL EDITOR wanted on a textile publication. Preferably with textile school background, and must have mill experience. Write giving full details of background, and salary requirement. P-597, Textile World, 330 W. 42nd St., New York, N. Y.

POSITIONS WANTED

PRACTICAL RAYON THROWSTER desires position as throwing superintendent, 20 years rayon crepe and hosiery throwing experience. Age 43 years—married. PW-587, Textile World, 330 W. 42nd St., New York, N. Y.

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A CHEMICAL COMPANY IN EASTERN PENNSYLVANIA WITH EXCELLENT REPUTATION AND FAVORABLE POSITION IN SEVERAL RAPIDLY DEVELOPING FIELDS OF CHEMISTRY, INCLUDING PLASTICS. WANTS MEN FOR ITS MANUFACTURING DEPARTMENTS. IMMEDIATE EMPLOYMENT AT GOOD PAY WITH EXCEPTIONALLY ATTRACTIVE POSTWAR PROSPECTS FOR MEN WHO LIKE PRODUCTION WORK AND ARE NOT AFRAID OF NIGHT SHIFTS. COMPANY HAS IN MIND MEN BETWEEN 25 AND 35 YEARS OF AGE WITH AT LEAST TWO YEARS OF COLLEGE CREDITS OR EQUIVALENT IN NIGHT SCHOOL COURSES. MEN OF HIGH QUALITY WANTED WHO ARE NOT NOW EMPLOYED IN ESSENTIAL WAR INDUSTRIES REQUIRING THEIR MAXIMUM SKILL, AND WHO APPRECIATE THE OPPORTUNITY FOR ADVANCEMENT AND PERMANENCE WHICH THE CHEMICAL INDUSTRY OFFERS. LETTERS WILL BE TREATED IN CONFIDENCE. *ADDRESS BOX*

P-581, Textile World, 330 West 42nd St., New York City

Over Forty Years of Dependable and Confidential EMPLOYMENT SERVICE
for textile mills, converters and selling houses requiring managers, superintendents, stylers, designers, salesmen, overseers, second hands, fixers, etc.
Phone, wire or write us your personnel requirements.

CHARLES P. RAYMOND SERVICE, Inc.
Phone: Liberty 6547 — 294 Washington Street, Boston, Mass.

WANTED

Representatives calling regularly at Textile Mills. We have a highly specialized line—no War baby, but War AND peace-time proposition. No machines, but material continuously used and replaced securing continuous flow of repeat orders.

Give full outlines with references, also outline of present connections.

RW-578, Textile World
330 West 42nd St., New York, N. Y.

TO HOSIERY MANUFACTURERS

English Wholesale Ladies Hosiery Specialist would like to be sole distributor of fine gauge stockings made by first class American full fashioned hosiery manufacturer. Well established among all the leading stores. Looking ahead with a view to postwar trading policies. Please contact

RA-576, Textile World
330 West 42nd St., New York City

POSITIONS WANTED

NYLON, RAYON, and Silk Throwing—Superintendent—Age thirty-seven, experienced both technically and practically in complete Throwing of nylon, rayon, and silk, wishes position as superintendent or assistant. Thoroughly understands and can handle help. Reason for leaving, plant closing. PW-588, Textile, 330 W. 42nd St., New York, N. Y.

OVERSEER OF WEAVING Rayons and cottons. Thoroughly experienced on Draper and Stafford looms. Plain, Cams and Dobbies. Also understand Winding, Warping, Slashing etc., on Rayons, Acetates and Cottons. Can get out production. Know how to handle labor. Can run small or big job. Located in New England, but interested in going anywhere, depending on size of job and salary. American, age 45. Married. Best of references as to experience and ability. PW-589, Textile World, 330 W. 42nd St., New York, N. Y.

POSITIONS WANTED

OVERSEER of Weaving desires change, eighteen years in weave room. Six years as overseer. My experience covers cottons and rayon, plain and fancy weaves. Ten years on jacquards running tapestry, draperies and brassiere cloth. Best of references. PW-594, Textile World, 330 W. 42nd St., New York, N. Y.

WOOLEN YARN SUPERINTENDENT, available to accept position immediately. Wide experience in every detail of Blending Carding and Spinning. Ring Dappers-Tape Condensers Mule & Frame Spinning; all types of Stock and Yarn for Weaving and Knitting. Age 47—Sober and reliable. PW-596, Textile World, 330 W. 42nd St., New York, N. Y.

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WANTED

TEXTILE & HOSIERY EXPORTERS seeking new profitable market (full development post-war) should communicate at once—W. B. O'Rourke & Company, Textile Agents 32, Wicklow Street, Dublin, Erie.

WANTED TEXTILE PLANT of three to five sets of cards and twisting equipment. Preferably old firm engaged in fine woolen yarn business. Location does not matter. W-590, Textile World, 330 W. 42nd St., New York, N. Y.

WANTED small, complete Jacquard weaving plant. Automatic looms preferred. Write full details. W-591, Textile World, 330 W. 42nd St., New York, N. Y.

FOR SALE

WOOL CARDING MACHINES. Two 48 inch Iron Frame Braker Cards, clothing in fair shape. One 48 inch Iron frame Finisher card, in fair shape, with Apperly Feed and rub rolls. Will sell at bargain. John S. Miller, Goshen, Ind.

"... no more new machinery *for the duration*"

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Here is Our Solution

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Quality USED
Textile Equipment

PREPARATORY
Scouring
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Gill Boxes
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QUALITY USED EQUIPMENT

Mill men telephone us their requirements . . . with the confidence that MLC stencilled on a case — or a carload — of USED textile machinery is assurance of satisfaction with the performance of that equipment *on the production line.*

Many times recently we have had to advise a prospective purchaser: "Sorry; but the machine we quoted you on 3 weeks ago was sold yesterday." Naturally, we don't enjoy having to tell you this . . .

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Special—
Just Ceased Operating

2—Sets Cotton Combers, including 2 Whitin Ribbon Lappers
2—Whitin Sliver Lappers
2—Whitin Model C Combers

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CRITICAL
Production Equipment
NOW IN STOCK

3—Button Breakers, 2-46", 1-52"
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5—48" Windle Doubler & Winder
1—66" Voelker Double Bed Cloth Press
1—set of 23 Lincoln 23" diameter by 88" face Copper Dry Cans
1—Proctor 2-truck Yarn Dryer
1—500 lb. Bleaching & Dyeing Kier
1—28 stick Klauder Weldon Monel Lined Non-Hoist Skein Dyeing Machine, motor driven, with Monel Poles
1—28" Copper Basket belt dr. Extractor
1—48" Tolhurst Copper Basket Belt Driven Extractor
5—Elliot & Hall Power Folding Machines, 1-40", 4-46"
2—Inspecting & Winding Mach. 1-54", 1-64"
10—50" Draper Automatic Magazine Worsted Looms, 6 harness, with warp stopmotions, belt driven
25—76" C. & K. 4 x 4, 25 harness heavy Worsted Looms
11—82" Cropton & Knowles 4 x 4 Box Woolen Looms, 25 harness, friction dr.
2—60" P. & W. Edge Stenciling & Winders
3—80 spindle Hopedale Band Twisters, 4½" Rings, 5½" Gauge, Belt Driven
3—104 spindle Hopedale Band Twisters, 4½" Rings, 5½" Gauge, Belt Driven
1—60" James Smith 2-cyl. Shoddy Card Set. Including Bramwell Feed
1—66" Roy Floor Type Card Grinder

MACHINERY LIQUIDATING COMPANY

OPA REGISTRATION NUMBER 789

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1—UNIVERSAL #40 CONER, 100 spindles, equipped with late type electric head; motor driven; arranged to wind on wooden cones. Excellent condition.

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Textile Machinery
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2—Whitin Model C Wool Spinning Frames
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76" C. & K. 4 x4 box Looms
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92" C. & K. 4 x4 box Looms
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15—2600 hook **Crompton & Knowles** double lift jacquard machines. Approx. 10 years old and practically as good as new, have been run very little.

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BUTTERWORTH CALENDER

7 ROLLS—80" FACE

3 Composition Rolls, 4 Steel Rolls, Hydraulic lift —water-cooled journals. Located in South.

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REBUILT & USED BUY WITH CONFIDENCE MELROSE 5-1772-3

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2—ROPE WASHERS 8' and 10' BOXES.
2—OPEN WIDTH WASHING & SCOURING BOWLS with 4 sets of SQUEEZE ROLLS (66" working surface) with 12 MONEL METAL IDLER ROLLS in EACH BOX.
2—TUBERS 60" & 30" Goods, Clocks & Mtrs.
1—RAILWAY SEWING MACHINE for 75" goods.
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1—QUETCH 2 Brass Rolls 67" on working surface.
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1—NAPPER GRINDER Adjustable to 80" Rolls.
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13—Sets 3 CYLINDER WOOLEN CARDS 48x48.
12—Sets MULES 288 to 336 Spindle units.
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5—Mixing Picker FEEDS 44" to 48".
56—C&K 43" Looms 4x4 Box, Belt driven.
48—C&K 45" Looms 4x1 Automatic, motor driven.
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1—Universal SKEIN to CONE WINDER 12 spdle.

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1— P&W Perch "A. W. C. Measurer"
1— 50" General Machine Co. 2 Roll Quetch
1—102" Textile Tenter 40' Long
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PROVIDENCE, R. I.

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1 48" Tolhurst Extractor, copper basket, underneath belt drive.
1 Garnet Shredder 42" face on rolls, table feed.
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1 Rodney Hunt Sample Fulling Mill.
2 Paper Balers 20x18x45, all steel, hand operated.
1 38" Padder 2 rubber rolls.

BTS

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Direct Factory Agents Walter L. Parker Bobbin & Spool Co.

BAY STATE TEXTILE CO.
220 HARTWELL STREET • FALL RIVER, MASS.

JOHN J. McCLOSKEY, Inc.

MANUFACTURERS AND DEALERS

TEXTILE MACHINERY OF ALL TYPES

APPRAISALS WOOLEN—WORSTED—COTTON LIQUIDATIONS
NEW AND USED

Philadelphia Office: 140-142 So. Front Street. Factory Warehouse: Collingswood, N. J.

HARRY STEPHENSON

IMPORTER, DEALER AND MANUFACTURER

TEXTILE MACHINERY AND APPLIANCES

NEW AND USED
River Works, Andover, Mass.

GAINES TEXTILE MACHINERY CO.

Dealers in Rebuilt and Guaranteed
Yarn Winding and Spinning Machinery

141-45 West 17th Street New York, N. Y.

MODERN TIME-SAVERS

"CONSOLIDATED"

The Transcontinental Plane spans the continent in fewer hours than the weeks taken by the Covered Wagon.

shrinks weeks and months to days or hours in getting you the Equipment you want for War Production. At a substantial saving, too! Save Time to Save America!

Supplying Textile Equipment for the DYEING FINISHING BLEACHING PRINTING WEAVING SPINNING OF RAYON COTTON WOOL WOOL FABRICS AND WORSTEDS

PRINTING MACHINES

9—Rice, Barton & Fales 3 to 8 color Print Machines, 40" to 64" wide, with color pans, mandrels, star & furnisher gears, etc.

CALENDERS

2—V.V. B.V. Calenders, 50".
2—Morrison B.B. Calenders, 50" & 60".
1—Morrison 3-roll B.B. Calender, 64".
1—60" Embossing Calender.
1—V.V. 40" Calender.

PALMER QUETCHES

3—Morrison & V. V. 60" & 72" Palmer Quetch Units.

AGER

1—18' x 60" Ager.

KETTLES

9—Textile Copper Steam Jacketed Color Kettles, tilting type, agitated, 30 to 200 gallons capacity.

DRYERS

3—National Loop Dryers, 28', 33', 65' lg.
2—P & X Airlay Dryers.
2—V.V. 50" & 66", 5 & 7-Tier Dryer, fin heaters.
1—Phila. Dry. Mach. Co. Hurricane Continuous Skein Dryer.
4—Frank Bailey Truck Dryers with extra trucks for skein & tube yarns.

PRINT PADDER

1—3-Roll Print Padder, dry tower with unit heater.

DYE JIGS

1—Battery 4—Butterworth stainless steel lined dye Jiggs, 45".
3—Butterworth 60" stainless steel lined dye Jiggs.

CAN DRYERS

300—Dry Cans, 50" to 108" face, 23" to 84" dia.

SCOURING & DYEING MACHINES

1—Sargent 3-Bowl skein Scouring Machine.
10—K-W Skein Dye. Machines, 20 to 30 sticks, hoist type.
1—Obermaier 400# Vertical Package Yarn Dye. Machine, with wash-off kettle and two motor driven centrifugal pumps.

A USABLE MACHINE STANDING IDLE IS A WORSE "ABSENTEE" THAN HUMAN LABOR

Send us your list now! Help us fill the demand!

TENTER FRAMES

2—W & J. 50' Frames with Morrison stainless steel clips, 44" & 54" wide.
3—V. V. & W. & J. 60' & 80' Frames.

FULLING MILLS

6—Rodney-Hunt Fulling Mills, gear drive.

DOUBLERS

3—P & W. 46" & 66" doubling, reeling & Measuring machines.

FLAT FOLDERS

6—Elliot & Hall Flat Folders, 42" to 60" wide.

OPEN WASHERS

1—Continuous Full Width Washer, consisting of 10 sections, 4 nips each section, 66".
1—60" Continuous Boil-off Machine, steel tanks.

ROPE SOAPERS

2—Rodney Hunt 10' Rope Soapers.
1—V. V. Continuous square formation Washer.

SHEARS

3—Parks & Woolson double blade Shears, 66" with list saving device.
1—Parks & Woolson 3-blade Shear, 60½" with list saving device.

BLEACHING

8—Bleaching 4-5 ton Kiers, vomit type.
1—5-ton Kier, circulating type, pump and motor.
2—Lincoln 2-roll chemical squeeze rolls.
2—Arlington Rope Squeezers, with clutch pulley drive.

BEAMERS—BATCHERS

4—V. V. 50" & 55" Beamers.

DECATERS

2—David Gessner & Parks & Woolson 72" & 48" wide, complete with Nash Pumps.

DYE BECKS

29—Dye Becks, Morrison, V. V. and General, 3' to 8', stainless steel and wood boxes.

EXTRACTORS

3—V. V. 60" rubber lined & Copper Extractors.
1—50" copper basket Extractor, underdriven centrifugal machine.
10—Burkhardt, V. V. Fletcher, Tolhurst & Haring & Stephens, 48", copper baskets.
4—Tolhurst & V. V. 40" to 44" copper lined baskets.
1—King & Gerber 42" Extractor, copper basket, self balancing type.
10—Tolhurst, American Laundry, Adams & Troy copper lined Extractors, self balancing. 20", 26", 28", 32", 40".

WORSTED SPINNING FRAMES

25—Ring Spinning Frames, 160 spindles each. 3½" pitch, 8" traverse, 1¾" ring, 4" front roll.

BUTTON BREAKERS

2—Textile & V. V. Button Breakers, 60" & 72" brass rolls.

MERCERIZING RANGE

1—Complete Mercerizing Range.

PADDERS, MANGLES, QUETCHES

4—Textile 50" 2-Roll Dye Padders.
7—Butterworth 50" 2-Roll Starch mangles.
2—Textile 80" 2-Roll mangles.
8—Butterworth & Morrison 2 & 3-Roll Quetches, 50", 60" & 72" wide.

WATER SOFTENERS

1—Permutit Water Softener, 103" hg, 63" wd, cleanout 13" x 17".
2—10 x 10 vertical softeners, zeolite piping, valves, meters and fittings.
2—Pressure sand filters, 8' dia., by 20' long, complete with pipe connections, valves and fittings.

SINGEING MACHINES

1—80" 2-Burner Singeing Machine.

VACUUM PUMPS

2—#3 Nash Pumps.
1—#2 Nash Pump.
1—L5 Nash Pump with double line Extractor.

For Immediate Disposal we offer the following excellent equipment from the former plant of the Arcadia Knitting Mills, Allentown, Penna.

9—Stainless Steel Lined Dye Becks, 18", 3', 5' & 14'.
2—American Laundry & Smith Drum Pullman type Tumblers.
1—Smith Drum Cascade type 7-Arm Monel Skein Dyeing Machine.
1—Hubolt 8-String Washer.
1—Continuous Rope Washer.
1—V. V. 54" Extractor, copper basket.
1—Single Line Fulling Mill.
1—Kenyon Dryer, 64" wide, 54" yds. capacity.
2—P. & S. & National 70' Loop Dryers, double line.
1—National 55' Loop Dryer, double line, rev. sticks.
1—Single Truck Dryer.
8—D. & F. & Woonsocket Nappers, 60" to 90".
2—Single Roll Nappers or Brushing Machines.
6—Steaming Machines, for Tubular Goods.
8—C. & M. Finishing Machines for tubular goods.
2—Tricot Machines.
4—Shears, some equipped with pattern devices.
3—2-Roll Quetches, 36" & 60".
1—3-Roll Quetch, 66".
1—36" 2-Roll Hot Roll Calender.
5—Examining Machines for tubular goods.
1—12' Clip Tenter, 60".
1—Grand Rapids Folder.
1—Skein Reeler.
2—Universal #50 6-spindle Coners.
1—Universal #50 Tuber.
2—All Steel Bailing Presses.
1—Arbor Press, Manley, 30-ton.
6—Stainless Steel Monitor Exhaust Fans, 11,000 CFM.
1—Gas Boiler.
1—Back Geared Lathe 6' between centers, 22" swing.

MISCELLANEOUS

Scutchers, Expanders, Sewing Machines, Trucks, Generator Sets, Air Receivers, Rubber Lined Tanks, Modine Heaters, Motors, Exhaust Fans, Pleaters, Mandrels, Doctor Blades, Gears, Lathes, Portable Agitators, Accumulators, etc.

CONSOLIDATED PRODUCTS CO., INC.

Address Inquiries to TEXTILE DIVISION, PATERSON, N. J., 5th Ave. & McClean Blvd.
Cable Address: Equipment, N. Y. Tel. ARmory 4-6540

New York City Office: 15 Park Row Tel. BArclay 7-0600

Supplying Equipment for: PROCESS • TEXTILE • MINING • FOOD • CHEMICAL • PLASTICS • CEMENT • PAINT • ROCK PRODUCT • RUBBER

SAVE TIME *to* SAVE AMERICA

FOR SALE

CRITICAL PRODUCTION EQUIPMENT

1—28 stick Klauder Weldon Monel Lined Non-Hoist Skein Dyeing Machine, motor driven, with Monel Poles.
1—Proctor 2-truck Yarn Dryer with Seven Trucks
3—80 spindle Hopedale Band Twisters, 4½" Rings, 5½" Gauge, Belt Driven
3—104 spindle Hopedale Band Twisters, 4½" Rings, 5½" Gauge, Belt Driven.
1—66" Voelker Double Bed Cloth Press
1—set of 23 Lincoln 23" diameter by 88" face, Copper Dry Cans.

FS-592, Textile World
330 West 42nd St., New York City

FOR SALE

30" LOOMS

76—Draper 30" Model E used looms in good condition. Complete with Lacey top motions, pulleys, shafting, beams, etc. Located in South.

AMES BAG CO.
10 East 40th St. New York, N. Y.

L. J.

McCAFFREY & SON, INC.

SUPPLIES FOR SALE

2,000,000—Flat Steel Heddles—12"
1,500—Heddle Frames 66" for 12" Heddles
500—Loom Beams 66" with Ratchet Frictions
1,950,000—Drop Wire, Regan-135A, (brand new)
100—Pr. Section Beam Heads—22" (cast iron)
150,000—Automatic Loom Bobbins—8"
450,000—Automatic Loom Bobbins—7"
93,594—Tripted Bobbins—7"

We do not advertise everything we have for sale.

Everything we do advertise we own.

Box 495 PAWTUCKET, R. I.

FOR SALE

Sargent CONE DUSTER
Sargent 36 in. BURR PICKER
Parkhurst 48 in. duplex BURR PICKER
Modern Harwood 48 in. PICKER FEED
TOLHURST 40 in. EXTRACTOR
15—TOMPKINS KNITTING TABLES

EXTRA-CYLINDERS
(Both Spring & Latch Needles)
KNITTING PARTS
BURR-WHEELS
(All makes and Gages)

DAVIS & FURBER 80 in. NAPPER
PAYNE WINDERS & BOTTLE BOBBINS
2—McCreary DOUBLE ROLL BRUSHERS
Cameron type SLITTING MACHINES
Firsching type SLITTING MACHINES
KNITTING MACHINES—ALL KINDS

Geo. E. Smith Textile Machinery Co.
P. O. BOX 48 COHOES, N. Y.

FOR SALE

1 Flax Tow Finisher Card by Combe Barbour equipped with Mackie automatic card feeder and drawing head.

FS-572, Textile World
68 Post St., San Francisco, Calif.

FOR SALE

1 Van Vlaanderen 50", 2 roll Calender for Rayon or Silk, top and bottom roll being paper approximately 20" diameter, middle or steam roll being 10" diameter, 51" face. This unit is a lever set unit, with a slip belt take-off.

LORRAINE FIBRE MILLS, INC.
Station T.—P. O. Box 33, Brooklyn, N. Y.

FOR SALE

Excellent Equipment, out of stock, here in N. Y. City

1—Haskell Dawes 4 ply Rope Machine.
2—Haskell Dawes 12"x14" Two spindle Formers.
6—Haskell Dawes 8"x10" Two spindle Formers.
1—12 spindle 5"x7" Twister.
10—20 spindle Ball winders. 5" Gauge. Silver Gay makes.
4—12 spindle Ball winders. 8" Gauge. Franklin makes.
1—378 spindle Whitin quiller.
2—Foster make, 40 spindle Tube winders, 6" Tubes.
4—Luther Thread Dressers. 98 spindle spool take offs.
75—Triple decker, Compound Wire Braiders. 16x16x24s etc;
10—Flat Knitting machines, for making Camouflage Nets, Fringes, etc; 36" width needle gauge.
8—90 and 100" Rachelle Knitting machines, for making Camouflage nettings.
90—16 carrier Textile Round Tubular Braiding machines, for making Parachute Cords for Government work. Ninety heads.
750—Flat and round Braiding machines, for government work, of all types.

We will consider trading any of the above machines for yarns, various sizes, colors, etc;
4—16 carrier #4 Butt Braiding machines.
4—12 carrier #4 Butt Braiding Machines.

WHAT DO YOU HAVE FOR SALE? SEND US YOUR LISTS.
ALL OF THE ABOVE EQUIPMENT IS LOCATED ON OUR FLOOR.

ROBERT SOLOMON & CO., INC.

30 West Houston Street New York City
Spring 7-2621

WANTED

WANTED

8 x 10 Haskell Dawes 2 spindle Formers.
12 x 14 Haskell Dawes 2 spindle Formers.
5 x 10 Haskell Dawes 6 spindle Formers.
5 x 7 Haskell Dawes 12 spindle Formers.

Advise condition, location, and price

W-575, Textile World
330 West 42nd St., New York City

WANT TO BUY TANKS

3—50,000 to 100,000 Gal. Cap. Elevated Steel Water Tanks on Towers
3—500 to 1000 GPM Fire Pumps

RUSSELL STANHOPE
60 East 42nd St. New York, N. Y.

WANTED

BRADFORD SPINNER

TO SPIN ON COMMISSION 2/24's
KHAKI

W-574, Textile World
330 W. 42nd St., New York City

WANTED

Extractors, 20" to 60" dia. baskets, belt or motor driven; Nash Vacuum Pumps; Centrifugal Pumps; Colloid Mills; Air Compressors; Storage Tanks 5000 to 50,000 gal.; Evaporators; Filters, etc.

SEND FULL DETAILS FOR QUICK ACTION.

BRILL EQUIPMENT CO.
183 Varick Street New York 14, N. Y.

WANTED

Several Sets of Wide Cans

W-577, Textile World
330 W. 42nd St., New York City

WANTED

Machinery to produce 600 pounds of fingering yarn per day.

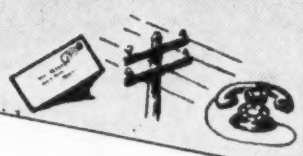
W-539, Textile World
68 Post Street, San Francisco, Calif.

WANTED

Small worsted yarn plant to produce 3,000 to 5,000 lbs. of knitting yarns per week. Bradford System.

W-580, Textile World
330 West 42nd St., New York City

REMEMBER "Republic" FOR QUICK ACTION!



FINISHING

1—Werner 48" Single Color Print Machine.
1—Rice, Barton & Fales 10-Color Print Machine.
1—Textile 8-Can Dryer, 23" x 60" Vertical Stack.
1—Butterworth 7-Can Dryer, 23" x 80", Horizontal.
1—Textile 26-Can Dryer, Copper, 23" x 45" Vertical.
1—54" King & Gerber Continuous Boil-Off Machine, with Rubber Nip Rolls and Slat Conveyor.
1—King & Gerber 65" 3-Roll Finishing Calender.
1—Textile 72" Full Width Open Soaper, with 2 Sets of Rubber Nip Rolls.
3—Stainless Steel Lined Sample Dye Becks.
1—4' Stainless Steel Lined Dye Beck.
1—19' Dye Beck.
3—Inclined Examining Machines.
1—30" Tolhurst Copper Basket Extractor.
1—48" Tolhurst Copper Basket Extractor.
4—Hercules 60" Rubber Basket Extractors, Motor Driven.
1—Atlas Fade-O-Meter.
2—72" Butterworth Dye Jiggs.
6—Copper Steam Jacketed Mixing Kettles, 50 to 200 Gallons Capacity.
2—1000 Gallon Steel Soap Kettles.
1—Gessner 80" 3-Roll Mangle, Heavy Duty, Roller Bearing, 12" Diameter Rubber Rolls, Direct Motor Drive.
1—76" Textile Heavy Duty Padder, 3 Rubber Rolls.
1—Van Vlaanderen 50" 3-Roll Print Padder, Roller Bearing.
3—Van Vlaanderen 2 and 3 Roll Quetches, 50" to 60" Face.
2—Birch Bros. Coronation Portable Sewing Machines.
1—Windsor & Jerauld 54" Tenter Frame, 60' Long.
1—Windsor & Jerauld 50" Tenter Frame, 30' Long.

FILTER PRESSES

1—Sweetland No. 4 Pressure Filter with Stainless Steel Screens.
1—Smith & Vale, 32" x 32" 42 Plate Filter Press, Open Delivery, 1½" Cake.

COLOR GRINDERS

1—Patterson 7' x 5'6" Silex Lined Pebble Mill, Gear on Head, Belted to 10 H.P., A.C. Motor.
1—Abbe 4' x 6' Porcelain Lined Pebble Mill, Texrope Drive for 5 H.P., A.C. Motor.
2—Paterson 4' x 5' Silex Lined Pebble Mills, Belted to 5 H.P. Motors.

SPECIAL

Perkins 100 Ton Roller Bearing Hydraulic Calender with motors, Hydraulic Pump, Accumulator, Spare Calender Bowls.

SPINNING

1—Howard & Bullough Bale Breaker, 1926 model, 12' extended apron Automatic Feed Regulator, Motor dirve.
1—Howard & Bullough 1926 Model Vertical Opener with Hopper Feeders and #7 Openers, Motor Driven.
1—Howard & Bullough four (4) Section (48" per section) Cleaning Trunk.
30—Howard & Bullough Spinning Frames, 3" Gauge, 228 Spindles each, 1⅞" #1 Flange Rings in Cast Iron Holders, Separators, Band Drive.

KNITTING MACHINES

30—Wildman's Range 10 inch 10 cut 6 feed to 23 inch 10 cut 12 feed.
200—Nye & Tredicks Range 10 inch 10 cut 8 feed to 23 inch 14 cut 12 feed.
1—Scott & Williams Tubular latch Needle Knitting machine 20" 16 Feed 14 Cut.
2—Copper Cuff Knitters 23 inch 6 Feed 14 Cut.
8—Scott & Williams latch needle tube knitters, Tables.

MOTORS

200—A.C. electric from ¼ to 75 H.P.

TANKS

2—Asbestos Insulated Round Steel Tanks, 6' Diameter x 6' Deep with open Steam Heating Pipe.
1—Steel Tank, Open Top, Side Bottom Outlet, 9' Diameter x 4½' Deep.
7—8,000 Gallon Closed Steel Pressure Tanks, ⅝" Plate, 8' x 20' Long, Dished Ends, Riveted.
5—Rubber Covered Open Steel Tanks, 4' Wide, 3' Deep, 6' Long.

BLEACH HOUSE EQUIPMENT

1—Steel Kier 8' dia. 9'.
1—Kier Loader Morrison.
3—Union Centrifugal Pumps 3" x 2" 5 H.P.
1—Gould Centrifugal Pump 5 H.P.
1—Fairbanks Morse Pump 3"—10 H.P.
1—Rodney Hunt Dye Machine 7'6" wide.

SPECIAL:—AUTOMATIC LOOMS

34—Draper Automatic Bobbin Changing Dobby Looms, Modified "D", 20 Harness Single Index Dobby, 69½" Reed Space, Midget Feelers 4 Bank Sliding Bar Step Motion, Stafford Thread Cutters, Friction Let-Off, Worm Take-Up, Single Filling Fork, Motor Driven by ½ H.P. G.E. 550 Volt Motor.

SEWING MACHINES

Union Special
25—52800
50—35300
11—9900
3—15400

Union Buttons
10—Button Sewers
10—Button Sewers used as Tackers

Wilcox & Gibbs
5 lock stitch

Metropolitan
4—192-5 elastic machines with elastic pullers.

FOLDING ROOM EQUIPMENT

2—Grand Rapids Textile Co. #1-2 folders for goods up to 28 inches wide.
2—Grand Rapids Textile Co. tubular cloth turning machines with brass turning pipe, 5" diam. by 13 ft. lg. with stand, rolls and countershaft.
30—Steam flatirons, units.
1—Conveyor, 100 ft. long.
2—Automatic steam pressing.

KETTLES

6—Copper Steam Jacketed Mixing Kettles, Equipped with Double Motion, Bronze Agitators, 70 to 350 Gallons Capacity.

MISCELLANEOUS

Water Softening Equipment, Water Filterers, Color Grinders, Filter Presses, Electric Trucks, Pumps, Tanks, General Plant Equipment.

NAPPER

1—Davis and Furber 40 Roll Napper.

WATER SOFTENING AND FILTRATION EQUIPMENT

2—Permutit Water Softeners, 10' Diameter x 16' Long, with Interconnecting Piping, Valves, Meters and Large Quantity of Zeolite.
2—Permutit Vertical Water Softeners, 3' Diameter, 6' High, complete with Zeolite and Fittings.
2—Permutit Type C, Electric Chemical Feeding Devices, Constant Feed.
1—Permutit Vertical Water Softener, 5' x 6' with Valves, Piping and Zeolite.
7—Hungerford & Terry Horizontal Steel Pressure Water Filters, 8' x 20', 8,000 Gallons Capacity, ⅝" Plate, equipped with Cross Piping, 8" Valves and all accessories.
1—Filter Everson 42" x 48".
1—Filter Permutit 6'6" x 6'.

SPECIAL

1—Tolhurst 48" Copper Basket Underslung Open Top Centrifugal Extractor, Self-Balancing Type on Springs, Equipped with Vertical A.C. Motor. Latest Type. Excellent Condition.

REMEMBER Republic Textile EQUIPMENT COMPANY
40 WORTH STREET NEW YORK CITY
Purchase and Sale of Used Machinery
REFINANCING • APPRAISALS • PURCHASE • SALE • LIQUIDATION OF MILL PROPERTIES

Style 20

LANE

The IDEAL BASKET for

LOOPERS

SEAMERS

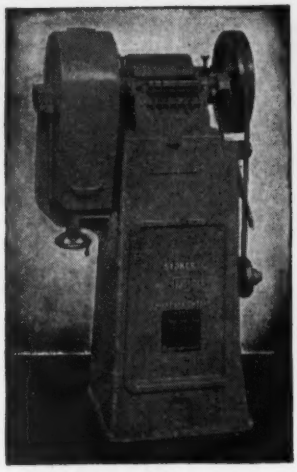
RIBBERS

GENERAL

W. T. **LANE** & BROS., Inc.

Manufacturers : POUGHKEEPSIE, N. Y.

New! Universal Fibre Cutter



- **Makes 500 to 20,000 knife cuts per minute. Handles 4 to 8 tops or equivalent simultaneously.**
- **For cutting Rayon, Silk, Wool, Flax, Jute, Cotton, other Fibres—Wet or Dry.**
- **With 4 interchangeable cutter heads produces full range of fibres, from Flock to 8″ length.**

This is an improved machine, accurate, flexible, highly productive . . . for wet or dry cutting. Features include Self-sharpening Knives, Tension Release for Feed, Hand-wheel adjustments while operating, Ball Bearings, Balanced Heavy-duty Cutter Heads, Enclosed Motor, Clutch for quickly stopping feed rolls, Variable-speed drive synchronized with feed, and others. Fully described in Bulletin 42-FC.

F. J. STOKES MACHINE COMPANY

6004 Tabor Road Olney P. O. Phila., Pa.

F.J.Stokes FJS Est. 1895

ARMSTRONG - BRAY

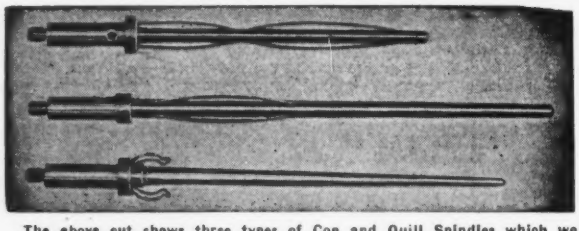
STEELGRIP

Flexible Belt Lacing

8 sizes boxed or in long lengths for wide conveyor belts. Best for rubber and fabric belts because it compresses belt ends and prevents fraying. Applied in a few minutes with a hammer. 2-piece hinged rocker pins. Also, WIREGRIP Belt Hooks that fit any lacing machine. Immediate delivery on both types.

Write for Circulars

ARMSTRONG-BRAY & CO.
"The Belt Lacing People"
5340 Northwest Highway
Chicago, U. S. A.



The above cut shows three types of Cop and Quill Spindles which we make for the silk trade.

Cop and Quill Spindles are made up to your individual requirements, according to size and type, to correctly fit your cops and quills.

The spindle on the bottom is equipped with an adjustable collar. By moving this collar in or out on the spindle it is possible for you to use, within certain limits, quills of different lengths.

You can save money by buying your cop and quill spindles from us. Our prices are right and our workmanship and materials are the best.

Try us for your next order.

Wayne Mfg. Co., Honesdale, Pa.

ALL STEEL

ECONOMY BALING PRESSES

ALL SIZES FOR ALL PURPOSES

LARGEST LINE BUILT IN U.S.A.

ECONOMY BALER CO., DEP'T. J ANN ARBOR, MICH., U.S.A.

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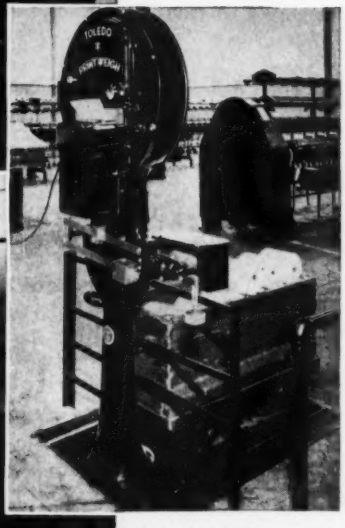
Lap Scales

Yardage Scales . . . automatically determine weight per yard, total weight of the piece, and the number of yards per pound. Send for Bulletin.



Toledo Printweigh meets Textile production needs with unerring *printed* records and split-second speed! Prints BIG figures FAST . . . on thick tickets, sheets or strips, with extra copies.

"Tailored" TO YOUR NEEDS FOR ACCURACY AND SPEED!

● Practical textile men everywhere today find that Toledo accuracy, speed and dependability in weighing help them meet tough wartime production schedules! With Toledos at *every* weighing point . . . you can be sure of rapid, efficient handling of weight control . . . so important to keeping your costs down and production UP! Because of long research in textile weighing problems . . . Toledos are "tailored" to your exact needs. Send for illustrated "Toledo Textile Book." Toledo Scale Company, Toledo, Ohio.

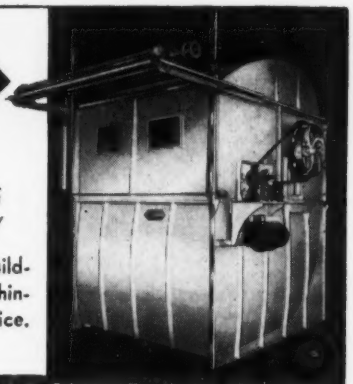
TOLEDO TEXTILE SCALES

RODNEY HUNT

Since 1840

WET FINISHING MACHINERY

A century of experience building standard and special machinery and rolls is at your service. What is your problem?



RODNEY HUNT MACHINE COMPANY

66 MILL STREET, ORANGE, MASSACHUSETTS, U. S. A.

WE'VE LEARNED A LOT IN OUR 50 YEARS!

50 years of specialized experience in producing tanks and tubs for the textile industry *has taught us some things that will be valuable to you!*

Let us tell you about our complete Caldwell service, which includes Stainless Steel-lined tanks and tubs—round, rectangular and special shapes. *Catalog on request.*

W. E. CALDWELL CO.
Incorporated
2060 Brook St. Louisville, Ky.

Caldwell TANKS AND TOWERS

PEQUOT
REG. U.S. PAT. OFF.
SHEETS AND PILLOW CASES

We're working for
UNCLE SAM
as well as
Mrs. American Housewife!

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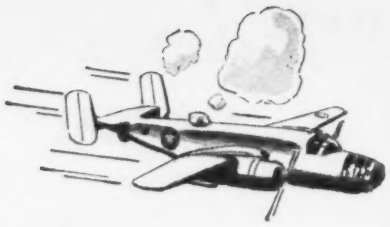

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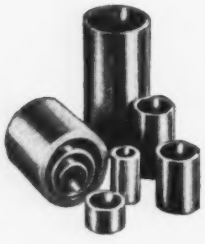

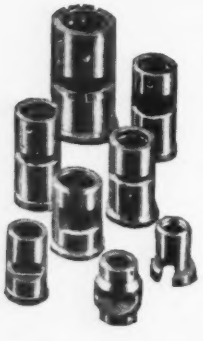

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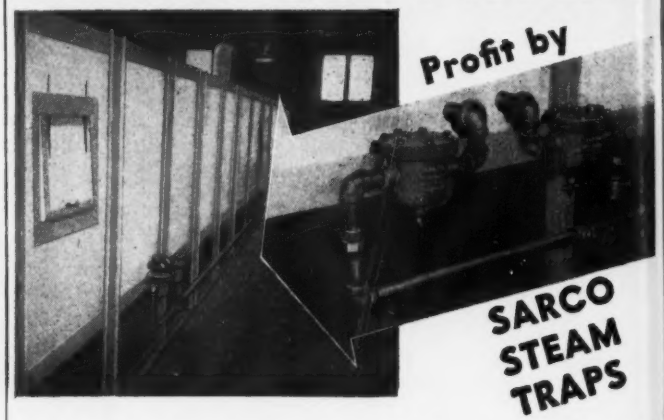

This continuous dryer, more than 60 feet long, is putting the finishing touch on miles of waterproofed fabric.

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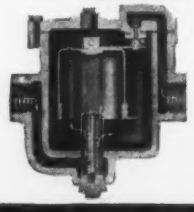

A built-in strainer keeps dirt and scale from the valve. A separate strainer is not necessary. Can be equipped with air bypass for rapid elimination of air and gas. Standard sizes to 900 lbs. Catalog No. 350.

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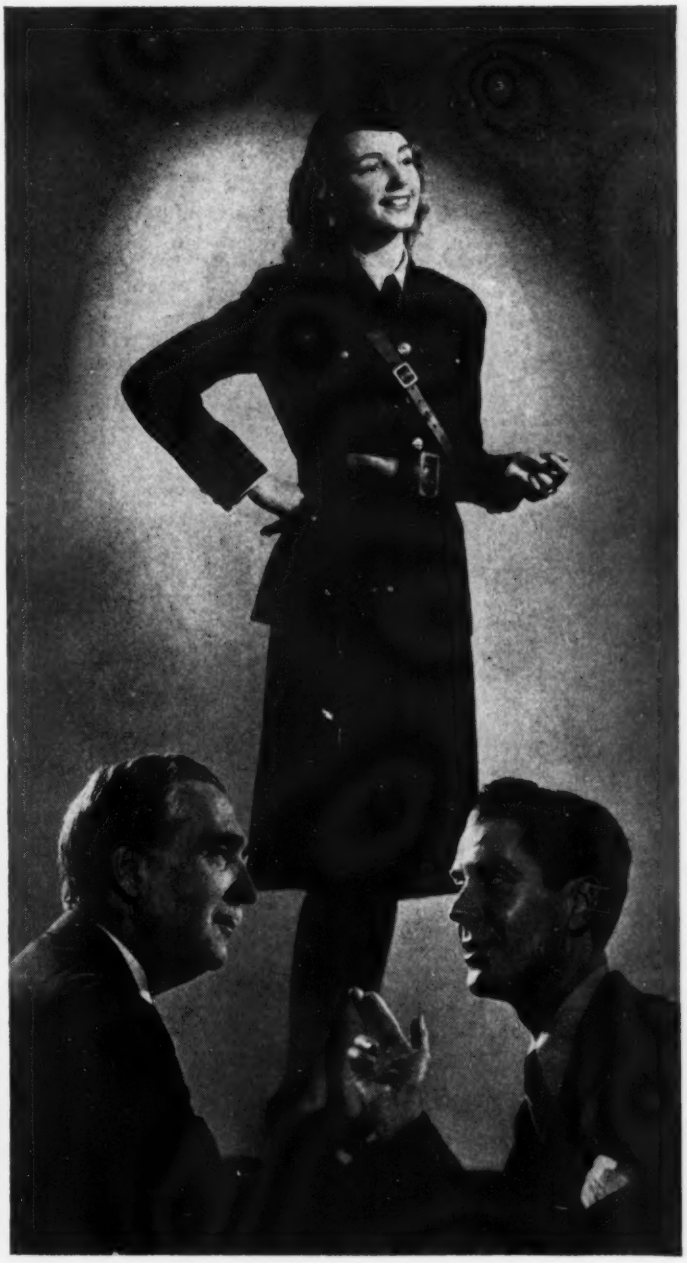

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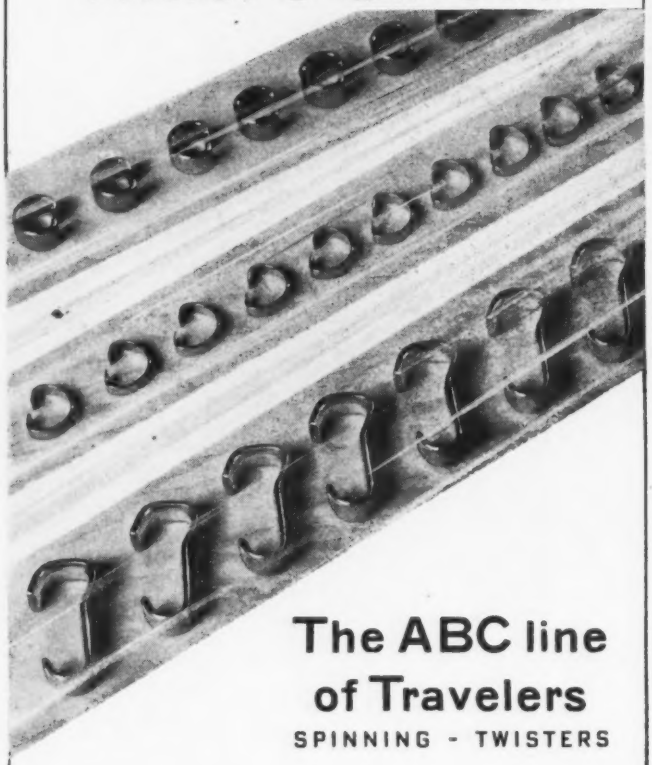

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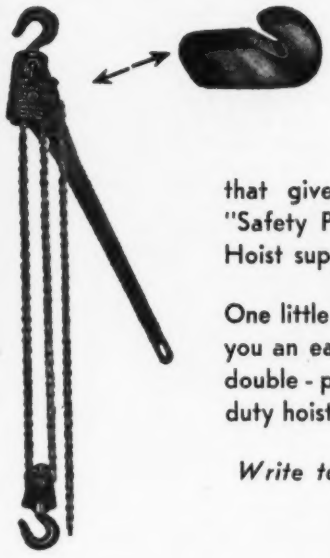

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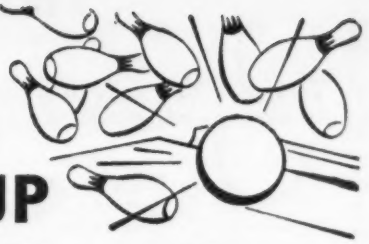

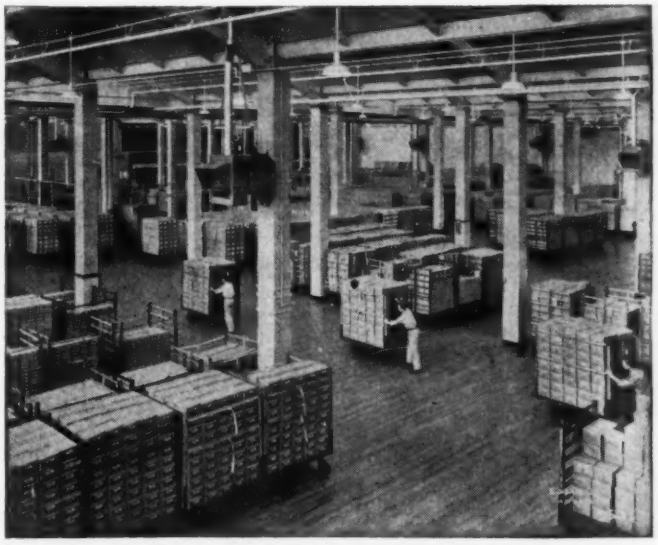

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Loom Battery No. 2 Loom No. 34
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Figure-wheels cleaned
Pins on drive rod tightened:
top (✓) bottom
Bracket tightened ( ) straightened
Seals Replaced
Where
Broken Glass replaced
Counter last oiled

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in order to "Keep 'em Counting"
... for the Duration

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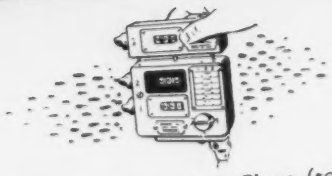
GLASSES:
BRACKETS:
OIL THE BRACKET-BEARING.
PINS:



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